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PREFACE TO THIRD EDITION

The publication of the third edition of *Handbook of Economic Geography* has long been overdue. Owing to many unforeseen reasons the book could not be published earlier, for which I owe a word of sincere apology to my readers.

In the preparation of the present work I have taken all pains to revise the whole text so as to make it more comprehensive and up-to-date. I shall feel my labour amply repaid if the book receives a cordial welcome among those for whom it is intended.

I am deeply grateful to Seth Santi Prasad Jain for giving me much encouragement and help in the preparation of the book. I have also received some assistance from Prof. Ajit Kumar Chakraborty, M.A. of Asutosh College, for which I am thankful to him. To Mr. P. Ghosh of Messrs. Benly Press my cordial thanks are due for his help in printing the book in an incredibly short time.

Asutosh College,
Calcutta.
The 10th August, 1954.

} SIVA PRASAD MOOKHERJEE.

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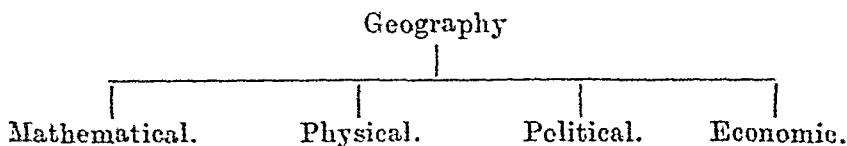
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CHAPTER I.

INTRODUCTION

DEFINITION—‘GEO’ means the Earth, and ‘GRAPHY’ derived from GRAPHO means a descriptive science. Geography is thus defined as a *descriptive science pertaining to the Earth*. The study of Geography which fails to make any reference to man and his well-being is meaningless. Without any humanistic background it becomes a mere descriptive catalogue of facts devoid of any significance. Recently Geography has come to be regarded as a Science, of which the central figure is man. Food, clothing and shelter, which are the most essential requirements of man both in the primitive as well as in the present advanced scientific ages, are mainly collected from nature. Modern Geography deals with “the lives of men and the work they do, the lands they inhabit, the climate they experience, and the vegetation which those lands and climates render possible;” it also enquires into the causes which determine their economic and allied activities. Thus “*Modern Geography is, in essence, the study of the Earth as the home of man, of the influence which the natural environment exercises on man and his activities, together with the analysis of those efforts of man to make the most use of the advantages of that environment or to overcome the disadvantages.*” In short, Modern Geography has a realistic touch.

CLASSIFICATION—Geography thus is a scientific study of the action of man on and his reaction to his physical and social environment and as such its scope is very wide and extensive. For the sake of convenience of study it has been classified into four broad divisions in accordance with the subject matter of each, such as (i) Mathematical Geography, (ii) Physical Geography, (iii) Political Geography, and (iv) Economic Geography.



(1) **MATHEMATICAL GEOGRAPHY** is that part of Geography which treats of the shape size, magnitude, tides and ocean currents and motions of the earth and the effects thereof, as well as the exact position of places on the earth's surface in relation to the solar system

(2) **PHYSICAL GEOGRAPHY** is that part of Geography which treats of the physical features of the earth's surface, such as its mountains rivers and lakes its climate and rainfall, natural vegetations etc

(3) **POLITICAL GEOGRAPHY** is that part of Geography which treats of the political or artificial divisions of the earth according to the occupation religion government standards of living etc of the people inhabiting them

(4) **ECONOMIC GEOGRAPHY** is that part of Geography which not only treats of the distribution of the raw materials of commerce (agricultural mineral etc) on the earth's surface and man's activities for the exploitation of nature to satisfy his various needs but also includes a study of the causes which influence the location of industries the determination of routes etc

IMPORTANCE—For a student of commerce an intensive study of the subject matter of Economic Geography is of primary importance

Nature has kept her infinite resources open for use of mankind and man in his turn by his ability has been successful in harnessing nature to his best advantage by proper utilisation of her resources. Economic Geography teaches its learners the ways and means of improving the standard of living of mankind by proper use of the natural resources. Detailed knowledge of manners and customs varieties of natural resources climatic conditions—favourable or otherwise to human habitation possibilities of improvement in trade and commerce the nature of industrial development and the transport system etc etc are the subjects which Economic Geography deals with. In short Economic Geography describes and explains the variations in productions of the different areas upon which the very existence of commerce depends and deals with the routes which determine the course of trade. It enquires into the causes or factors influencing the distribution and activities of man on the earth. It also

suggests possibilities of further economic development of the different parts of the earth's surface and in this way helps to the betterment of the world for the benefit of mankind.

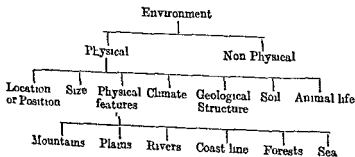
✓ **RELATION TO OTHER SCIENCES**—Geography is closely related to Geology, Meteorology, Botany, Anthropology, Biology, Chemistry, Zoology, Astronomy, Physiography, Sociology, Economics, Politics, etc. It has already been said that the scope of geography is very wide and extensive, since it comprises the whole sphere of human activity, and that man's economic activities are determined by the (Geographical) environment under which he lives. The formation and structure of the earth, climate, physical features, animal lives, vegetations, tides, ocean-currents laws, governments, race, religion, etc., equally influence his economic activities, and they constitute the subject-matter of the different sciences such as Geology, Meteorology, Physiography, Anthropology, Zoology, Botany, Astronomy, Politics, Sociology, Ecology, etc. As a branch of knowledge, Geography is thus closely connected with all other sciences and it is an undeniable truth that thorough grasp of all the different branches of science will facilitate its understanding.

CHAPTER II

ENVIRONMENT

MAN AND ENVIRONMENT—That "the mode of life in any given region is not an accident but is a product of environment" is a mere truism. Environment exercises a far reaching influence not only in determining man's economic and allied activities but also in shaping the destiny of a nation. The various countries of the world are at different stages of economic development. England and Germany are great manufacturing countries as against India and China which are agricultural. Environment is responsible both for contributing to the industrial and economic greatness of England and Germany as well as for agricultural development of India and China. Again the people of England and Germany are very energetic and active whilst those of India and China are unenterprising and indolent. The difference in the character of the people of those countries is also partly attributable to that of environment of the respective countries. Environment also determines man's habitability in different parts of the world as well as explains why some parts such as England and Germany, have dense population whilst others, such as Brazil and Congo, are sparsely inhabited.

Environment may be classified into two broad groups—(i) *Physical* and (ii) *Non Physical*. Economic Geography is mainly concerned with physical environment so far as it affects production, distribution, transport and exchange of commodities etc. Physical or Natural environment includes within its scope the following—(i) Location or Position, (ii) Size, (iii) Physical or Natural features, (iv) Climate, (v) Geological Structure, (vi) Soil, (vii) Animal life of a country.



PHYSICAL ENVIRONMENT

THE LOCATION OR POSITION of a country in relation to the world as a whole determines to a great extent the economic activities of the people of that country. The situation of a country may be broadly classified as (i) continental, (ii) insular, and (iii) peninsular. The situation of countries like Afghanistan, Hungary, Austria, Czechoslovakia, Bolivia, etc., is continental; that of Great Britain and Japan is insular; and that of India and Italy is peninsular. So far as trade and commerce is concerned, countries possessing close proximity to the sea enjoy far greater facilities than the continental countries located far inland. The natural temperate climate of islands increases the activities of the inhabitants thereof and affords by far the greatest facilities towards the development of their navigation and fishing industry. Being surrounded on three sides by the sea the peninsular position of a country also provides almost the same facilities in regard to trade and commerce as the insular position does.

Of the various types of location the insular position enjoys by far the greatest facilities of trade and commerce. The position of Great Britain with reference to the whole world is so favourable that it is by far the most industrially and commercially advanced country of the world. She is centrally situated and as such no part of the commercial world is too far from her. This advantageous position has led to the phenomenal growth of her foreign trade. Being located within 50°N — 60°N latitude, Great Britain enjoys temperate and moderate climate which has greatly enhanced the activities of her people. Besides due to her location in the continental shelf of the Atlantic Ocean, her surrounding waters are shallow, and this accounts for the development of the fishing industry of the country. Moreover, proximity to the highly industrialised countries has greatly developed in the minds of the British people the idea of keen rivalry in various industrial spheres. Similar is the advantage enjoyed by Japan as a result of her insular position in the Pacific Ocean. Then come in order of importance, so far as the world's principal trade routes are concerned, the peninsular and continental types of situation. The peninsular position of India and Italy has afforded these two countries very great facilities for the development of commerce

On the other hand, the continental situation of Austria, Hungary, Czechoslovakia, Afghanistan etc. is such that these countries have no easy access to the world's important trade routes and consequently the commercial importance of these countries is not very great. The location in close proximity to industrial zones helps a country to develop her industry, trade and commerce to a great extent. Italy furnishes a striking example. Until the Nineteenth century her position in the world's industry and trade was very disappointing, but due to her proximity to the neighbouring industrial areas she has made a very striking progress in industry within a very short time. The position of Switzerland likewise, in the heart of the industrial zone of Europe has attributed, to a very great extent to her industrial development, since her favourable location greatly facilitated borrowing of industrial ideas and technical training from her highly industrialised neighbours such as Germany, Belgium, France and Italy without any difficulty. In other words, the country which is centrally situated with reference to the land surface of the globe and as such is in close proximity to the world markets, is in a better position to develop her economic resources than another country without all those natural advantages. On the other hand, the economic development of a country whose location is devoid of natural facilities is very remote. The location of Tibet, Mongolia, Greenland and Alaska fully corroborates this.

The location of a country is said to be favourable when it has natural boundaries such as seas, mountains, rivers etc., proximity to the world's trade routes, genial climate and water transport facilities. Natural boundaries remain ever unchanged and afford immunities from foreign invasions and thus are greatly helpful in promoting a spirit of nationality and also the growth of industries and commerce of a country. The insular position of Great Britain by providing peace and security to the people of the country largely contributed to her phenomenal development of trade and industry during the nineteenth century while the recurring wars were devastating the whole of continental Europe. On the other hand, artificial boundaries which are not marked by any natural phenomena but are generally fixed by wars, or treaties, or mutual agreements, etc. are very often liable to sudden changes and as such the trade, commerce and industries of a country (like

pastoral industry is the main occupation of the people. The Pennine ranges of Great Britain are the ideal stock-raising regions in the whole of the British Isles. *Fifthly*, mountains are responsible for the growth of forests on their valleys and lower slopes, which provide raw materials for various manufacturing industries. The great forest regions of India are all located at the feet of the Himalayan mountains. *Sixthly*, they are often valuable sources of mineral wealth. The Alleghany mountains of U. S. A., the Hartz mountains of Germany and the mountainous regions of Canada, Mexico and U. S. S. R. are the veritable store-houses of mineral wealth. *Lastly*, they afford excellent opportunities for the development of hydro-electricity for industrial purposes because of the existence of many hill-streams and falls. Norway, Sweden, Switzerland and Italy are the best examples of the extent to which hydro-electricity can go for the economic development of a country. Moreover, high mountains provide enlivening scenery which attract tourists from all quarters of the globe. These mountains also offer bracing climate suitable for health resorts. Darjeeling, Simla, Ootacamund and Shillong are examples of this. The enervating climatic influence makes the mountain people energetic, healthy and industrious, but isolation from outside influence makes these people very simple, honest and conservative sticking to their old customs and usages.

Thus, it is evident that the mountains exercise a great benevolent influence on man and his economic activities.

On the other hand, PLAINS contrast sharply with mountains so far as production, transport and distribution of commodities are concerned. Food and shelter are the two principal problems of livelihood and human settlement is possible in places where these two vital problems can easily be solved. The reason for high density in the plains is due to the easy availability of all these facilities there. The alluvium carried by the river and deposited on the plains fertilises the soil and increases agricultural production. Where the climatic conditions are favourable, plains provide valuable land for agricultural and pastoral industries and are thus the principal sources of food supply of the world. All the principal agricultural fields are located in the plains. The evenness of the surface facilitates railway and canal construction.

The major portion of the world's railway mileage is confined to the plains. The rivers in the plains have milder current affording greater facilities for navigation. The most useful and navigable rivers, such as the Rhine, Elbe, Seine, Loire, Danube, Dnieper, Don in Europe, the Mississippi in U.S.A., the Nile in Egypt, the Ganges and Brahmaputra in Indian Union, the Indus in Pakistan, the Yangtze Kiang and Hwang He in China—all flow for the greater part of their courses through the plains. The transport facilities so afforded render importation of scientific machinery much easier and thereby increase production, and also by making the best use of these advantages it may be possible to solve the world's food problem by increasing the productivity of the soil of the plains by scientific methods. All the principal agricultural belts of the world lie in the plains and mention may be made in this respect of Australia, Canada, U.S.A., Argentina, etc. With the easy availability of industrial raw materials and the facilities for import and export of manufactured products the industry and commerce develop side by side with agriculture, and this is one of the main factors accounting for high density of population in the plains. Besides, plains constitute the most convenient type of land formation for human settlement on a large scale. Nearly 96% of the world's population is found in the plains where climatic conditions are suitable for habitation. The excessive concentration of population as well as the great development of trade and industries in the Indo Gangetic plain are largely accounted for by the comparatively level land of that plain. Plains harbour all the highly developed and greatly industrialised countries of the world.

But although plains offer so many advantages it must not be assumed that all plains are suitable for human habitation and development of trade, commerce and industries. It is the climate which decides whether or not a particular plain is hospitable to human habitation. The sparse population in regions like the Amazon Basin, the Sahara and the Tardras, although they are plains, is due to extreme climatic conditions which render human settlement extremely difficult.

The importance of RIVERS in the economic life of the people cannot be denied. The rivers of a country discharge three principal functions—first, as natural transporting agencies,

secondly, as natural fertilising agencies, and *thirdly*, as irrigating agencies.

As the natural transporting agents, the rivers are important for the collection and distribution of goods. In Europe the river system of Germany is to a great extent responsible for her phenomenal industrial development. Her river system plays a predominantly important part in the economic life of that country. On the other hand, in Russia and China, the railway system being quite inadequate, much of the transport is done through the rivers. Prior to the introduction of the railway system the import and export of industrial raw materials and finished products were carried through the rivers, and due to the advantages in internal and external transportation, big cities, such as Calcutta, Bombay, London, New York, etc., have grown up on river sides. In modern times also, although there has been an appreciable expansion of railway system, the importance of rivers as transporting medium has not suffered in the least. The regions near navigable rivers become naturally rich in agricultural and industrial resources causing high density of population. The navigability of rivers, moreover, facilitates exchange of manners and customs, ideas and culture among different countries and this is the reason why such regions became the centres of ancient civilisation.

Rivers to serve as useful transporting agents must have the following characteristics :—

First, they should be free from ice: If the rivers are frozen or ice-bound during the winter, continuous traffic throughout the year becomes impossible. The rivers of Russia and Canada are mostly useless as they are frozen for the greater part of the year. *Secondly*, they should be deep enough so as to allow big steamers and boats to ply on them. The shallowness of rivers makes constant dredging imperative so as to make them serviceable for transportation purposes. The Ganges, Congo, Zambesi and Amazon, for example, require constant dredging to allow big ships to ply thereon. *Thirdly*, they should be free from cataracts and falls. The rivers whose paths are very much obstructed by cataracts etc., are useless as transporting agents. *Fourthly*, they should have continuous supply of water. In this connection it is to be remembered that there are two types of rivers—(i) snow-fed and

(ii) rain fed rivers The snow fed rivers have constant flow of water throughout the year and as such they are good transporting agents, whereas the rain fed rivers have water during the rainy season only and as such their value as transportation medium is seasonal in character. The rivers of Southern India being mostly rain fed dry up during six months of the year and as such they are not as important as the snow fed rivers of Northern India as transporting agents.

Besides rendering transportation services, the rivers serve other useful purposes too. As fertilising agents they play a predominantly important part, since they fertilise the valleys and plains through which they pass by the deposit of the suspending manurial matters on the soil. 'Egypt is the gift of the Nile', because the river Nile not only serves as a transporting agent but also helps the fertility of the country by depositing alluvial silt on the soil of the country, which is primarily responsible for the high productivity of the country. "The three great rivers of Hindusthan—the Ganges, the Brahmaputra and the Indus—supply manure and moisture and highways of carriage for all the wealth of the plain" and account for the excessive concentration of population in that plain due to its high fertility.

Moreover, rivers help greatly the irrigational problems of a country either by supplying water through canals to the fields or through inundation.

Rivers also permit generation of cheap hydro-electric power and thus promote the industrial development of a country. The industrial growth of Switzerland would have been impossible but for the availability of cheap hydro-electric power from the swift-running Swiss rivers.

Judging from all these facts it is quite evident that the larger the number of rivers of a country is, the greater is the possibility of that country's economic development.

'The nature of COAST LINE of a country affects its commercial and industrial development to a great extent.' Coast-line is the land which borders on the sea. The character of the coast line promotes or restricts the economic activities of the people of a country. The coast line may be of two types—(i) regular or unbroken and (ii) irregular or indented. To be of

economic advantages, the coast-line must be irregular. The indented nature of a coast-line helps the growth and development of good many excellent natural ports and harbours which afford protection to vessels by minimising the violence of the waves. A broken coast-line enables ships to go far into the interior of the country so that the costs of importing raw materials from overseas countries and exporting finished products to different consuming markets are reduced to the minimum. Owing to the fact that the broken coast-line of a country enables the sea to go far inland it is obvious that the cost of shipping merchandise from one part of the country to another part becomes appreciably small. Great Britain, whose coast-line is very much irregular, has a number of good ports and harbours which help her overseas trade and thus her commercial development is in a large measure attributed to her broken coast-line. The commercial greatness of Holland is partly the result of her broken coast. It is said that the character of her coast-line has made the Dutch essentially a commercial and sea-faring nation. Due to the broken nature of her coast-line Greece at one time made tremendous headway in international trade and commerce.

The fact, however, should not be ignored that other factors may stand in the way of the advantages gained from a broken coast-line. The commercial and industrial development of Norway, though her coast-line is very much broken, has been greatly hampered due to the existence of steep mountain walls near the coast, which obstruct greatly the collection of exportable produce and disposal of imported cargoes.

On the other hand, a regular or unbroken coast-line of a country presents very many obstacles in the construction of useful ports and harbours, and it is very difficult for that country to have inter-oceanic trade, *i. e.*, trade with other countries through the medium of the ocean trade routes. Africa, for example, is very unfavourably placed due to her regular coast-line for which she has not become so very commercially important. The eastern coast of undivided India being surf-bound and her western coast being more or less regular and open to the violence of the monsoon, no major ports of commercial importance other than Chittagong, Calcutta, Madras, Vizagapatam, Bombay and Karachi have grown

up, and consequently the industrial and commercial development of India has suffered to a very great extent

FORESTS are important for their direct and indirect benefits and as such influence the economic life of the people of a country. *Their influence on climate is great.* They obstruct the course of the rain bearing winds and thus cause heavier rainfall. They also tend to minimise the extreme variations in climatic conditions. Forests by preventing soil erosion enhance the productivity of the soil. Besides they yield valuable economic products and raw materials for industrial purposes. These are timber lac gum resin essential oil dyestuffs and tanning materials wood alcohol camphor wood pulp oilseeds wild rubber, guttapercha etc. Hides skins and wool are obtained from the animals of the forest and these constitute important items of commodities in the world's market. *The mainstay of the people of the forest regions is lumbering.*

The SEA also influences greatly the industry and commerce of a country. For example Great Britain New Zealand and Japan being located in the temperate seas have greatly developed in fishing industry. Due to the proximity to the sea and consequent development of deep sea fishing, the Britishers have come to be a great sea faring nation. Moreover the sea encircling a country provides a natural protective boundary line.

Thus the physical features of a country exercise a great influence on man and his economic activities although man's reaction to the hostile and unfavourable physical features has lessened to a great extent the ill effects resulting therefrom. The presence of mountains no longer stands as a barrier to railway construction, as tunnels are cut to enable the railway lines to be laid even through the mountains etc. Likewise the rigours of bad physical features have been largely mitigated but not yet altogether stopped and man has to modify his life according to the surrounding physical features. By controlling the unrestrained flow of rivers it has been possible to convert barren tracts of land into regions dressed green with various fresh crops and to effect industrial and commercial development. Man's activities have been successful in rendering the snow covered Siberia suitable for human habitation. Man's aim is to live in comfort and in many respects by dint of knowledge intellect and labour man has succeeded in

establishing his supremacy in his everlasting struggle with the hostile elements of nature.

CLIMATE—"No factor of his environment exercises wider influences on man and his economy than climate." Climate as opposed to weather means the average conditions of the heat or moisture of any country and depends upon the following :—(i) latitude, *i.e.*, the distance north or south of the equator, (ii) altitude *i.e.*, the height above the sea-level, (iii) distance from the sea, (iv) direction of the prevalent winds, (v) character of the surrounding lands, and (vi) character and direction of the nearest ocean currents.

Climate is an extremely important geographical factor in the production, distribution and exchange of all commodities except minerals. Indeed it does not play any part in the distribution of minerals and their exploitation, but it affects profoundly the production and distribution of all raw materials derived from vegetable and animal kingdom. Man's food, clothing and shelter are dependent on climate and in different plains they differ according to climatic variations. Cultivated agricultural products depend largely on the combined influences of heat and moisture of any particular region. Wheat for its successful cultivation requires a different type of climatic condition than that suitable for rice. Likewise, climatic conditions for sugarcane differ from those required for sugar-beet. Climate, thus, ultimately determines the type of cultivated products in any particular region. Again, forests and allied industries largely depend upon the natural vegetations of the region, which, in their turn, are chiefly determined by climatic conditions. The great development of the lumbering industry in Canada is directly attributed to her favourable climate.

Climate also determines the distribution of animals and in this way affects the development of pastoral industries in a country. The inhospitable climate of the hot deserts, such as the Sahara and the Kalahari of Africa, prohibits any rearing of sheep and cattle. On the other hand, the Veld of South Africa and the Prairies of North America with favourable climatic conditions offer ideal opportunities for the development of pastoral industries. Even in the development of the fishing industry too, the influence of climate is keenly felt. The extreme heat of the tropical regions is not conducive to the growth of edible fishes, for

which all the important fisheries of the world are located in the temperate regions

Climate plays a predominantly important part in the development and localisation of manufacturing industries. For their successful growth manufacturing industries require moderate and equable climate and this climatic feature of the temperate zone alone has made it the home of all the manufacturing industries of the world. Again, different industries require different types of climatic condition. Cotton textile industry requires a damp and humid climate, as the dry fibres of cotton are liable to break if they are spun and stretched in a dry atmosphere. The phenomenal development of cotton textile industry in Lancashire, Ahmedabad and Osaka is largely attributed to their humid climate. Woollen industry, on the other hand, requires dry climate for the successful spinning of the woollen yarns and principally for this climatic reason it has developed in Yorkshire. Flour milling industry flourishes under dry climatic conditions for which this industry has greatly developed in the inland centres such as St. Paul and Minneapolis in U.S.A., Budapest in Hungary and Karachi in Pakistan. Sunny and cloudless climate is conducive to photography and largely for this cinematography industry is localised in countries with bright climate such as Los Angeles in U.S.A.

Climate also determines the nature of the manufacturing industries. Many of the manufacturing industries of Switzerland are carried in the homes of the labourers as cottage industries, since the hard Swiss winter with her fall of snow and frost brings outdoor activities to a standstill for a greater part of the year. The widespread cotton hand loom industry in India has been resulted greatly from the demand for light clothings to be worn in the hot climatic conditions of India.

Climate has a marked influence on man's physical and mental capacity. The great heat of the equatorial regions has made the inhabitants indolent and inactive, whereas the cool bracing climate of the temperate countries has accounted for the great mental vigour and bodily activities of their inhabitants. Again, climate directly affects the physique of the people. The steamy heat of the equatorial regions makes the people dwarfish as compared with the tall stature of the inhabitants of the temperate zone. The equable climate of the British Isles is responsible for high enterprise and adventurous nature of the British people and is, one the

whole, conducive to hard work, neither the summer heat being sufficiently intense nor the winter so severe as to prevent continuous work throughout the year.

Climate largely determines distribution of the population. The hot deserts, such as the Sahara and the Kalahari, are sparsely inhabited for their non-productiveness which is due not to infertility of the soil but to hostile climate. The high density of population in the monsoon lands is largely accounted for by the great food-producing capacity and profuse vegetation of such lands under favourable climatic conditions.

Climate also determines the actual means and routes of distribution. Bad climate hampers greatly the development of communication systems of a country. The severe winter in Russia makes her rivers useless for transportation purposes as they are mostly frozen and icebound in winter. Ice restricts the use of her Baltic seaports for the greater part of the year. Heavy snowfall and her frozen surfaces block railway and other means of communication, and specially adapted means of transport, such as snow sledges, are used in Russia. Even today the wind systems regulate the movement of sailing ships. In aerial transport too the influence of climate is also keenly felt as aerial flight in bad and stormy or foggy weather has proved disastrous.

Indeed "no factor of his environment exercises such a wider influence on man and his economy than climate." Man cannot materially alter the climatic environment, but by introducing many artificial means of making the best possible use of it he can considerably modify its effects or turn it to his own advantage. He has found the means of combating the aridity of the hot deserts by irrigation and has turned barren lands into flourishing agricultural fields.

GEOLOGICAL STRUCTURE—The geological structure of the earth is important in promoting or retarding the economic activities of the people of a country. Most of the minerals such as gold, silver, iron, coal etc., occur as ores or in veins in the underlying rocks of the earth, and thus the development of mining industry in a country is largely influenced by the character and composition of her underlying rocks. In a country rich in mineral resources mining becomes the chief industry and mainstay of the people. The presence of minerals and their exploitation have brought into prominence new undeveloped territories and have

accounted for their commercial development. "Gold mines are the backbone of South Africa", and the exploitation of her old mines has led to her commercial greatness and industrial prosperity. Similar is the case with Australia. Her industrial progress is attributable to her mineral resources.

Of all the geographical factors of environment man has the least control over geological structure of the earth, since he cannot create a new field of minerals where it does not already exist, nor can he replenish any mine when it is exhausted.

SOIL—The importance of soil in determining the economic life of a country cannot be denied, since much of the food and clothing of mankind is directly or indirectly derived from it. Agricultural products vary according to the quality of the local soil, e.g., jute is the exclusive product of Eastern Pakistan, Egyptian cotton is considered best, although cotton grows in India and Pakistan. For similar reason different varieties of vegetation grow in different parts of the world.

Soil is essential to plants both as a hold fast and for the derivation of nourishment, and soil fertility is an important factor in the production of vegetation. Soils vary much in their composition of fertility. *Alluvial soils* are very fine and particularly fertile because they are rich in plant food. *Sandy and limestone soils* are porous and usually support only the poorer types of grasses. *Clayey soils* are heavy, impervious and fertile and so are valuable in regions of high rainfall. *Loamy soils* are usually mixtures of sandy and clayey soils in equal proportion. They are rich in humus, i.e., decomposed vegetable and organic matters and are excellent for all types of crops. *Rocky soils* are thin and support nothing but shallow rooted poor grasses. Fertile soil regions have always led to their agricultural development and high density of population.

Man has modified the influence of the soil and turned it to his own advantage. The use of artificial manures and scientific soil treatment have not only maintained but in some cases even increased the productivity of the soil.

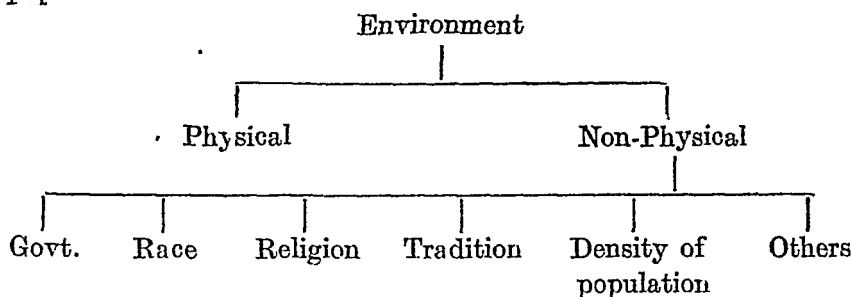
ANIMAL LIFE—Man's dependence on animal is great. His food and clothings are largely determined by the type of animals that are to be found in a particular region. The development of wool industry in Australia and the fur industry in Russia depend entirely on the respective animal lives of those regions. Man has

succeeded in turning to his use certain animals, either as beasts of burden or as food-resources.

Man has not yet completely controlled the animal lives, but his influence over them is, on the whole, great.

NON-PHYSICAL ENVIRONMENT

Non-Physical or non-geographical environment also greatly influences the economic activities of the people of a country. The factors which constitute non-physical environment are (i) government, (ii) race, (iii) religion, (iv) tradition, (v) density of population.



GOVERNMENT.—Government through its special prerogatives can help or hinder the economic activities of the people of a country. The phenomenal development of Japan in industries may be ascribed to a large extent to her state-help and state-initiative. Germany's industrial expansion, likewise, is largely due to the paternalistic attitude of her government towards industries. On the other hand, bad and unstable government of China has largely accounted for her industrial weakness. Even the vast mineral wealth of Mexico could not make that country industrialised owing to the weak government and consequent prevalence of political disturbances. Governments, through protective tariffs or absolute prohibition of imports, can develop industries of a country. The development of iron and steel, match-making, and chemical industries in India is largely due to government patronage and sympathy.

RACE.—Race also to a great extent influences the economic activities of the people. Human race is chiefly divided in three classes—(i) *white*, (ii) *yellow* and (iii) *black*. Due to the influence of the temperate climate the white race is highly industrious and

controls the greater part of the trade of the world. The Germans belong to the nordic race which is noted for hard labour, enterprise and energy. The industrial greatness of Germany is largely the result of enterprising nature of the Germans. The negroes are idle, unenterprising and self contented. The resultant effect is that Africa—the home of negroes—is mostly undeveloped and whatever little development is to be found is due to the enterprise of the people belonging to the white race.

RELIGION—Religion likewise influences the economic activities of the people particularly in backward areas where people are found to be very superstitious. A religion may prohibit some activities to its followers and they in order to live faithful lives in conformity to religious injunctions regulate their activities accordingly. Buddhism prohibits cattle rearing for food purposes and so its followers in China and Japan do not raise cattle. The caste system of the Hindu religion regulates the division of work among the various groups with the result that large scale production is very difficult, the supply of labour for each group being limited. Again the preachings of Islam prohibit wine manufacturing and the Mediterranean countries such as Albania, Turkey and North Africa though they have all the advantages of wine manufacturing do not manufacture wine as such activity is disapproved by religion. Thus religion is also a factor which influences the economic development of a country to a certain degree.

TRADITION—Tradition is also largely responsible for maintaining the industrial greatness of a country and influencing the economic activities of its people. It is too well known that Lancashire does not produce an ounce of cotton but still she is maintaining her unrivalled supremacy in cotton textile trade. That can be only explained with reference to the acquired skill of the Lancashire operatives and tradition associated with that locality.

DENSITY OF POPULATION—Economic development of a country also depends to a great extent upon the size and density of its population. A country may have all the natural resources but its development will not be possible if its population is very small. Sparse population of Australia made her a pastoral country whereas great density of population in Great Britain has accounted for her thorough industrialisation. Popu

annual range is usually only 5° F. There is no winter in these regions, there being all through the year one long wet summer. As the sun shines for about 12 hours each day throughout the year, there is little variation in the length of day and night. Perpetual calm prevails in these regions and rainfall occurs particularly in the evening with particular regularity of time. Heavy rainfalls occur at all seasons, and these are convectional rains. Nearly everywhere the amount of rainfall exceeds 80" inches. The almost daily rainfalls tend to keep the temperature lower than it would otherwise be, and hence the regions of the equatorial type do not experience too high temperatures. As the Amazon basin is the most typical of the equatorial type, these regions are also known as being of the *Amazon type*.

High temperature and well-distributed rainfall of the equatorial regions produce a luxuriant growth of evergreen broad-leaved forests. The great struggle here is not for moisture of which there is an abundance, but for air and light. The trees are tall, and their foliage overhead is so dense and thick that the lower levels are usually dark. For this the equatorial regions are said to be the *regions of twilight*. The trees of the forests are of the hard-wooded species and include ebony, mahogany, dyewoods, log-woods, etc. Typical products of these regions are bamboo, coconut, rubber, palm and gutta-percha. The dense forests of this nature in South America are known as Selvas. The exploitation of these forests presents many difficulties. The timbers are mainly hard woods difficult to cut and costly to work. Again, the dense undergrowth and swampy nature of the forests make the construction of roads and railways difficult—sometimes even impossible. The rivers and streams are the only means of internal communication.

In the equatorial regions the only animals that can live are the birds, monkeys, snakes and elephants. An abundance of insects, ants, and flies is also noticed.

Typical inhabitants of the regions are the American Indian tribes of the Amazon and the pygmies of the Congo. The equatorial regions have been described as the *Regions of Debilitation*. "Human life in such a region has altered little since the earliest days of man's occupation of the earth". There is no incentive to work, as nature is most bountiful, and the oppressive heat makes the inhabitants indolent, dwarfish in size, and incapable

of mental development. They are hunters and therefore nomadic. Clothing is not a matter of much importance in such a warm country.

It is very difficult to clear the equatorial forests. The trees are hard wood difficult to cut down or to burn. The forests even if cleared have a tendency of becoming covered with quick growing jungles and thorny growths. Even if successfully cleared these regions do not lend themselves to agricultural development for the torrential rains which are the regular features of these regions will completely wash away the soil leaving the bare unfertile rock. But when successfully cleared and developed these regions are highly productive. The British Malaya and Indonesia are the typical examples of the scientific development of these regions.

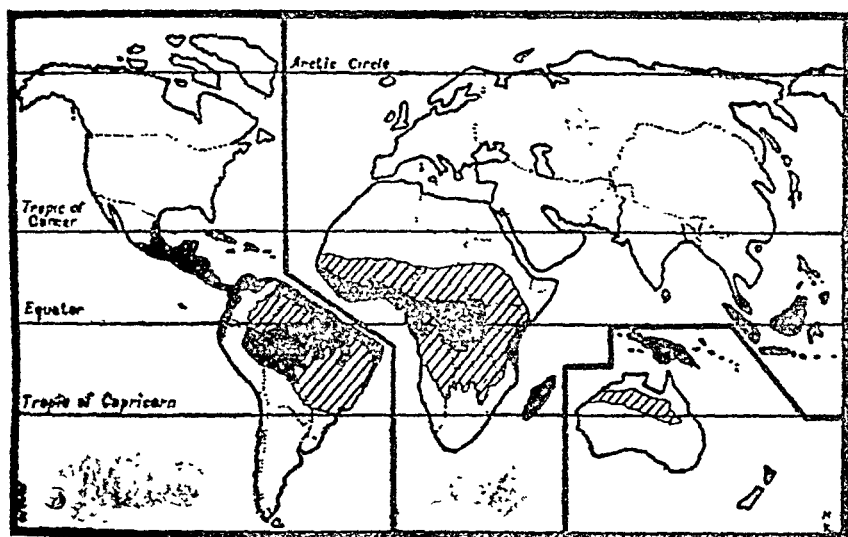
The characteristic commercial products of these regions are rubber, cocoa, palm-oil, gutta percha, copra, sago, rice, sugar cane, cinchona, tobacco, spices, oil seeds, pineapples, bannanas etc. and valuable timber.

As might be expected from the abundance of trees that the timber is the most valuable product of these regions but the equatorial regions do not supply large quantities of timber to the world's market because

- (i) There is no winter and no snowfall to provide a frozen surface over which the logs can be hauled
- (ii) Transportation difficulties
- (iii) Some of the woods are heavier than water and have to be transported by boat
- (iv) Findings of the valuable trees are extremely difficult and
- (v) unhealthy climate

2 THE TROPICAL GRASSLAND REGIONS—The Tropical grassland regions lie in broad belts between the tropics of Cancer and Capricorn immediately to the north and the south of the equatorial lands and include Venezuela and Brazil in South America, Nigeria, Sudan, Uganda, Kenya, Tanganyika, Nyasaland, Angola and Northern Rhodesia in Africa and a belt just south of the northern peninsulas of Australia. These regions are also known by local names. In Venezuela they are called *Llanos* while in Brazil they are called *Campos*. In the Sudan region of Africa and in Australia the name *Savanna* is used but in Rhodesia of South Africa they are called *Pariklands*.

The tropical grassland regions are the typical transition areas between the equatorial lowlands and the hot deserts. Temperatures are high (80° — 90°) at all seasons, seldom falling below 70°F. , and the difference in temperature between the hot and cool season is great. The regions near the Equator have a rainfall of



Distribution of Equatorial Forest Regions (black) and Tropical Grasslands (shaded).

about 80" and consequently the temperature is much less in these areas than in other parts. On the other hand, in the areas near deserts the rainfall being more or less 15" the temperature is the highest. The rainfall is seasonal; most of the rainfall is in summer, and the amount of rainfall seldom exceeds 60 inches. Lands of these regions, therefore, experience hot, wet summers, and very warm, dry winters. These characteristic features of weather are mostly noticed in Sudan in Africa, and consequently the tropical grassland regions are sometimes referred to as being of the *Sudan type*.

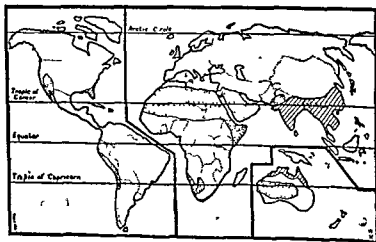
The characteristic vegetation of these regions is a luxuriant growth of grasses with occasional trees. The grass grows quickly after spring-rains, and provides food for the grass-eating animals, but during the dry period which follows the grass becomes scorched and withered and forms a mat of hard vegetation over the ground. In regions where rainfall is heavy trees predominate.

The animals in these regions are unlike those of the equatorial forests that are specially adapted for climbing trees. The animals are of two main groups—(i) the large grass-eating animals such as the antelope, the giraffe, the kangaroo, etc., and (ii) the carnivorous animals like the lion, the leopard, the tiger, etc. Birds and insects are also fairly abundant.

The Savanna lands are inhabited by backward races. Man in the Savanna is primarily a pastoralist as the Savannas with their areas of cheap land are most suited for cattle rearing. The high temperatures which prevail at all seasons also make crop-growing possible all the year round, but at present these regions are very little developed. On the whole, the Sudan type is a *Region of effort*, where man can expect a fair reward for his labour.

The characteristic commercial products of these regions are hides and skins, maize, millets, coffee, cotton, oilseeds, gum-arabic, tobacco, etc.

3 THE TROPICAL MONSOON REGIONS—The tropical monsoon regions lie in the same latitudes as the Savannas, and



Distribution of Tropical Monsoon Regions (shaded)
and Hot Deserts (dotted)

mostly occupy the eastern margins of the continents. They include India, Pakistan, Burma, Siam, Indo China, Southern

China, the Philippines, the north-west of Australia, Central America, northern South America, the West Indies, East Africa coastlands and Madagascar.

The climate of the monsoon regions is a modified form of the Savanna type owing to its greater rainfall, and comparatively higher temperatures throughout the year. "Monsoon lands are dominated by winds from the sea to land in summer—the wet season—and by winds from land to sea in winter—the dry season." All monsoon regions are, therefore, characterised by (i) dry winter and (ii) wet summer. In summer the temperature varies between 80° — 90° F. with rainfall ranging between 40"—80". In winter temperature varies between 50° — 60° and rainfall is almost nil. In winter the monsoon land is cold and is an area of high pressure from which dry winds blow out towards the sea, but with the advent of summer, the land-mass becomes quickly heated, producing a great low-pressure area into which the moisture-laden winds from the sea flow in and cause heavy rainfall. The rainfall in these regions, therefore, is caused not so much by the regular trade winds as by a complete reversal of the normal wind system. Rainfall also is not equally distributed and varies according to the relief, direction of winds, etc.

The vegetation of the monsoon lands is determined by the distribution of rainfall. In the wetter parts where the rainfall is over 80 inches, the natural vegetation is deciduous forest of valuable timber such as teak, sandal-wood, sal, bamboo, camphor, etc. In drier parts deserts and semi-desert conditions prevail. Besides these, mango trees, palm trees, etc. also constitute valuable evergreen forests trees of the monsoon regions. The monsoon forests are more easily cleared than the equatorial forests and in the clearings agriculture is intensively practised.

Cattle, sheep, goats, elephants, tiger, leopard, bear, etc. are the typical animals of these regions.

The monsoon lands are the most densely populated regions of the world. Agriculture is the main occupation of the people and supports a dense population. Rice, coffee, tea, maize, wheat, millet and sugarcane are the chief food-crops which grow in these regions. Little effort is needed to reap a large reward in these regions as the return from the soil is bountiful; and so in contrast to the Savanna regions, the monsoon regions have been called the *Regions of Increment*.

The characteristic commercial products of these regions are rice, tea, coffee, wheat, millet, sugarcane, pulses, oilseeds, tobacco, jute cotton silk and indigo

The conditions of human life and the type of cultivated crop in monsoon regions depend largely on the rainfall. So complete is the dependence of the people on monsoon rainfall for agriculture that the failure or the late-coming of the monsoon may cause famine conditions in these regions. In these areas "probably there is no other single group of weather phenomena which is so far reaching in its effects as the monsoon."

Easy availability of food stuff with very little effort was a serious set back in the industrial development of the monsoon regions, but it cannot be denied that this fact also led to the early rise of civilisation in India and China. With the growth of population the situation has changed altogether in recent times and the growth of industries is already in evidence. It is believed that with the ample supply of raw materials these regions will attain great industrial development in near future.

4 THE HOT DESERT REGIONS—The hot desert regions lie on the poleward margins of the tropical lands and mainly occur on the western side of the land masses. They include the Sahara and the Kalahari in Africa, Colorado and Mexico in North America, the Atacama in South America, Arabia and Thar in Asia, and the Great Desert of Western Australia. The most typical area of this type is the Sahara in Africa, and consequently the hot desert regions are sometimes referred to as being of the *Sahara type*.

Why all the hot deserts of the world are found on the western sides of the continents and not on the eastern sides? Because in the tropics the regular winds are the Trade winds. In some parts they blow over the sea and bring a rainy season. But there are immense areas in the Tropics, where the Trade winds never blow over the sea but always over the land, where they are not able to gather moisture. Here they are intensely dry winds. In all these areas the Trade winds blow off shore from east to west so they have little or no rainfall when they reach the western sides of the land masses.

The climate of these regions is characterised by a great scarcity of rainfall (below 10 inches). Here the currents of dry air are descending, and the dry winds blow outwards in the form of Trade

or Anti-trade winds, causing no rainfall. The ranges of temperature as between summer and winter and also as between day and night are great (about 90°). These are naturally the regions of maximum heat and aridity.

High temperature and meagre rainfall in these regions are not conducive to vegetation growth. The characteristic vegetation is the date palm. In order to withstand the desert climate, the plants have special devices to conserve water. Some of them have long roots to reach the subterranean water, some have leaves and stems which can store up water, and almost all of them are well-protected by spikes and thorns from being eaten up by animals.

The most typical of the desert animals is the camel. Goats, asses and mules are also found. The deserts are sparsely inhabited by nomadic tribes such as the Beduins, etc., and cattle-rearing and trade in dates, hides and skins, are their principal occupation.

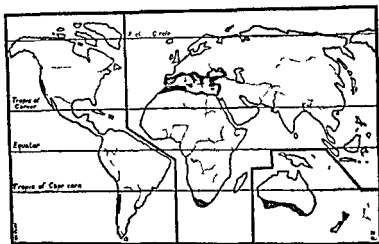
The deserts have little economic value. The great scarcity of water has hindered their economic development. They are the *Regions of privation* and of *Lasting difficulty*. Artificial irrigation, however, might turn these apparently barren lands into highly productive regions such as the Nile valley. In irrigated regions wheat, barley, maize, millet, rice, sugar-cane and cotton can be successfully grown. Oases are of special importance as they permit their agricultural and pastoral development and also allow human habitation, though few in number.

The economic importance of the deserts is due more to minerals than cultivated crops. Copper and nitrate in the Atacama desert of South America, gold and diamond in the Kalahari desert of South Africa, and gold in the West Australian deserts have made these desert regions commercially important.

Barring minerals the products of the desert regions are not of any great commercial value.

5. THE MEDITERRANEAN REGIONS—The Mediterranean regions lie chiefly between latitudes 30° and 40° and mostly occupy the western margins of the continental land-masses. They include the Mediterranean lands such as Spain, Portugal, Southern France, Italy, the Balkan States, Syria and North Africa; Central California in North America, Central Chile in South America, South-west of South Africa, South and South-west of Australia, and North Newzealand. Since these

regions occur mostly on the western margins of the continents they are sometimes referred to as being of the *Western Marginal* type. But this type of climate is more popularly termed the *Mediterranean* type because the climatic effect is most pre dominantly noticed in the countries bordering the Mediterranean coast



Distribution of Mediterranean Regions

The climate of these regions is one of hot, dry summer and warm wet winter. In summer, these lands are in the Trade wind belt with outblowing winds of land origin, and as such they are hot and dry. In winter, however, they come under the influence of the wet westerlies and therefore receive winter rains. For this reason the Mediterranean lands are sometimes referred to as *winter rain regions*. In general the rainfall of these regions varies between 10 and 40 inches a year. In summer the temperature rises as high as 90° , while in winter it is about 50° . Bright sunshine is a typical attribute of these regions skies being almost cloudless in summer and even in the rainy winter clouds are few in number.

Causes of origin of the Mediterranean climate and comparison between the Mediterranean and the Monsoon climate—The main reason for the origin of the Mediterranean type of climate is the change in the direction of the wind system due to annual motion

of the sun. In summer when the sun comes near the Tropic of Cancer the pressure belt of the torrid zone moves towards north, as a result of which the Trade wind which blows over the countries on the Mediterranean coast has very little moisture in it owing to its passage through the continent of Asia, and consequently the Mediterranean countries receive practically no rainfall in summer. On the other hand, in winter when the sun advances towards the Tropic of Capricorn the high pressure belt of the torrid zone gradually moves towards south. The result is that the south-western anti-Trade wind abundantly laden with moisture from the Atlantic Ocean and the Mediterranean Sea passes over the Mediterranean countries causing heavy rainfall there in winter.

In the Monsoon regions the ranges of temperature in summer and winter are 95°F. and 60°F. respectively and the average rainfall is 75 inches.

The nature of the monsoon type of climate is altogether different from that of the Mediterranean type. In summer, the monsoon blowing from sea to land carries with it particles of water and causes heavy rainfall on the countries over which it passes. In winter, on the other hand, it blows from land to sea and consequently it carries insignificant quantity of water particles with it. It is evident, therefore, that dry winter and wet summer constitute the chief characteristic features of the monsoon climate. In monsoon regions winter is mild and due to heavy rainfall the summer temperature is much less than it should naturally be, the temperature being dependent on local conditions. Briefly speaking, rainfall is caused in the Mediterranean lands due to the change of place of the regular wind belts, while in the case of monsoon lands it is due to the complete reversal of the normal wind system, and the difference between these two types of climate is solely attributable to this difference in rainfall.

The natural vegetation of these regions is adapted to withstand the long dry summer, and has characteristic devices to conserve water from rains, or to reach subterranean water supplies during the period of summer drought. To prevent excessive evaporation, the trees have small leathery leaves coated with wax or with fine silky hairs, while others deep roots. The long dry summer with bright sunshine is ideal for the ripening of fruits such as oranges, lemons, grape-fruits, peaches, pears, apricots,

figs, vines, olives, almonds, apples etc. Flower production is also important. Cereals like wheat and barley are extensively cultivated. Maize and rice are also grown. In the wetter parts fine forests of walnut, chestnut, corkoak, etc., occur. Mulberry tree is also very common and silk is an important product. The olive is the typical tree of the region which grows throughout the year and yields valuable oil.

Horses, mules, goats and pigs are the typical animals. Where conditions are favourable cattle and sheep are reared. Spain and Portugal are the home of the famous Merino wool sheep.

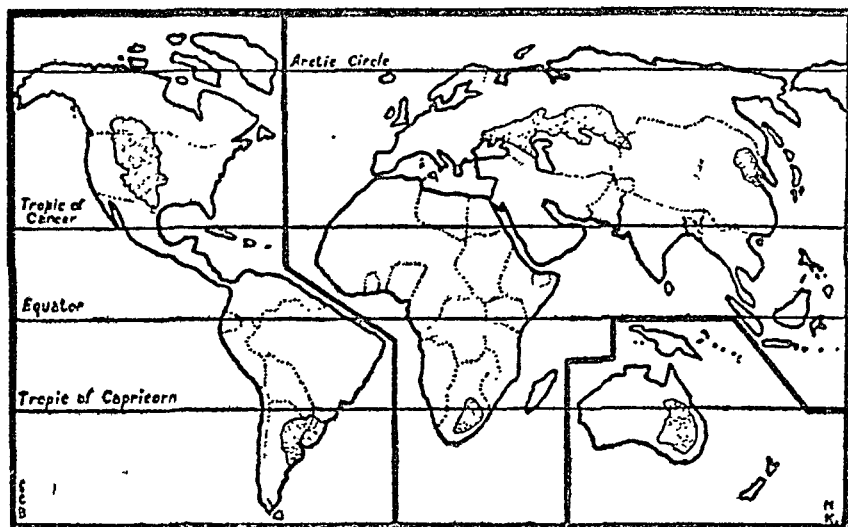
The attractiveness of the climate and the high productivity of the soil have caused these regions to be densely populated. Manufactures have greatly developed and provide employment to many. Wine making and silk manufacturing are the typical industries of these regions. France, Spain, Portugal and Italy specialise in wine manufacturing. Man's effort to make a living is not great and hence these regions are also known as *Regions of Increment*.

The important commercial products of these regions are timber, cork, silk, wine, fruits and flowers.

6 THE TEMPERATE GRASSLAND REGIONS—The temperate grassland regions lie in mid latitudes both in the northern and southern hemispheres, and occupy the hearts of the continental land masses. They include Southern Russia, Poland, Rumania, Hungary, and parts of Germany in Europe; Western and Southern Siberia, Mongolia and Manchukuo in Asia; central low lands of North America, Argentina and Uruguay in South America; South African plateau in Africa, and the Murray-Darling basin in Australia. The temperate grassland regions are also known by local names. In North America, they are called *Prairies*, while in South America they are called *Pampas*. In Europe, the name *Steppes* is used. In Africa they are called the *Veld*, while in Australia they are called *Downs*.

Though the name 'Temperate Grasslands' is used, the climate of these regions is not mild and temperate. Being far removed from the moderating influence of the sea, these regions experience great extremes of temperature as between the summer and winter months. The winters are very long and very severe, while the summers are short but hot. Since these regions

are situated in the temperate zones of the earth and experience extremes of climate, they are sometimes referred to as being of the *Temperate Continental type*. Rainfall is moderate and hardly ever exceeds 10 to 30 inches a year occurring chiefly in the summer season.



Distribution of Temperate Grasslands

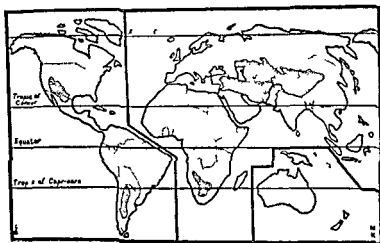
The light summer rains are not suitable for trees and the temperate grassland regions are treeless. Grass is the typical vegetation, and is usually softer than that of the tropical grasslands. Pastoral industries, therefore, are of prime importance. Sheep and cattle are extensively reared. These regions are also highly productive of cereal crops, and have become the granaries of the world. Wheat, barley, oat, rye and maize are extensively grown.

The animals are of two main groups : (i) the grass-eating swift-footed animals such as the horse, ass, sheep and cattle ; and (ii) the carnivorous animals such as the wolf, dog, etc. .

The temperate grasslands are sparsely inhabited by nomadic people. Until recently they were mostly pastoralists. Recent agricultural development has led to more settled population.

The important commercial products of these regions are beef, mutton, wool, wheat, barley, maize, rye, oats and sugar-beet.

7 THE TEMPERATE DESERT REGIONS—The Temperate Desert Regions occur in the interior of the continents of Eurasia North and South America. They include the Iran plateau interior of Asia Minor parts of Arabia Afghanistan high plateaus of Central Asia (Tibet) and the Gobi deserts in Eurasia interior Rocky mountain regions in North America and the Patagonian desert region of South America. The Temperate deserts vary greatly according to local conditions and can be sub divided into further sub divisions such as (i) the Iran type (ii) the Tibet type (iii) the Gobi type (iv) the Altai type etc



Distribution of Temperate Deserts

The temperate desert regions are characterised by high ranges of temperature and a very low rainfall. The meagre rainfall occurs mainly in the summer when these regions form low pressure areas with in blowing winds. But the regions which border the Mediterranean lands receive winter rain.

The natural vegetation of these regions is poor grass or scrub according to the amount of rainfall. Generally these regions are unsuited for agriculture but where oases and other irrigation methods are found cereal crops like wheat barley and maize are grown.

Horses asses cattle and sheep feed on the richer grass lands. These regions are thinly inhabited by nomadic tribes.

Pastoral industry is the chief occupation of the people. Agriculture is practised only in the valleys with the aid of irrigation by a few permanent inhabitants. The temperate desert regions, like the Hot Deserts, have also been described as the *Regions of Lasting difficulty*.

The products of commercial importance are few. Man's struggle for existence is very severe.

8. THE WARM EAST-COAST MARGINAL REGIONS—

The warm East-coast Marginal regions lie in the same latitudes as the Mediterranean lands, and occupy the eastern margins of the continents. They include the south-eastern states of the U.S.A. in North America, South-eastern Brazil and Uruguay in South America, Northern and Central China, and Southern Japan in Asia, south-eastern coastlands of Africa and South-eastern Australia. The warm east-coast margins vary greatly according to local conditions and can be further subdivided into several sub-divisions such as (i) the Gulf type, (ii) the China type, and (iii) the East Australian type, etc.

These regions have resemblances in temperature to the Mediterranean lands. But rainfall in these eastern lands comes mainly in summer in contrast to the Mediterranean lands which have winter rainfall. On the whole, the climate of these regions may be classed as "temperate monsoon".

The natural vegetation is of the forest type. Where rainfall is well-distributed, evergreen forests of tall trees occur, and have earned the name "Warm Temperate Rain Forests". Yellow pines, palm, walnuts, camphor, magnolia, oak and tree ferns are characteristic of these forests. These forests are easily cleared, and the cleared areas are largely suited for agricultural development. Rice, wheat, maize, millet, pulses, indigo, camphor, coffee, tobacco, tea, cotton and sugarcane are extensively grown. Mulberry trees are also found, and silk is also produced. Though these regions are suited for pastoral development, pastoral industry has not greatly developed for the high density of population. In Southern Hemisphere, however, in the eastern lands cattle and sheep are successfully reared. The high productivity of the soil makes these regions particularly suited for human settlement, and some of these areas such as Central China are the most densely populated parts of the world. Agriculture is

the main occupation of the people. Pastoral industry is also important chiefly in the countries of the Southern Hemisphere.

The important commercial products of these regions are rice, wheat, maize, cane sugar, cotton, tobacco, tea and silk.

9 THE DECIDUOUS FOREST REGIONS—The Deciduous Forest Regions lie on the western margins of the continents like the Mediterranean lands but on the poleward side of the latter. They include North-western Europe, South-west Canada, North-western states of the U.S.A., British Columbia, Southern Chile, Tasmania and the South Island of New Zealand. These regions are sometimes referred to as being of the *Cool Western Marginal* type.

A low range of temperature between summer and winter, and a well-distributed rainfall throughout the year are the characteristic climatic features of these regions. In all these regions the temperature is seldom above 60° F. The mild and equable climate is primarily the result of oceanic influence. These lands lie always in the westerly wind belts and so are under the influence of cool rain-bearing winds from the ocean throughout the year. The climate is oceanic and for this reason these regions are also known as the *Cool Oceanic* type.

These western marginal lands are the natural home of the temperate deciduous forests such as oak, elm, maple, beech and birch. In contrast to the monsoon forests which shed their leaves in spring, the deciduous forests shed their leaves in autumn as a protection against winter frosts. The deciduous forests generally yield valuable timbers which are more easily worked than those of the equatorial lands. Most of these forests have been replaced by agriculture. Wheat, barley, oats, rye, sugar beet and potatoes are successfully grown with maize in the warmer parts. Typical fruits of these regions are apples and pears.

Cattle and sheep are reared and the dairy farming is an important industry. Horses are also found. Fishing industry is important. These regions are densely populated by industrious and energetic people and are the most highly developed parts of the world. The cool temperate climate is most conducive to human progress, neither the summer heat too exacting nor the winter cold too severe for continuous hard work. The develop-

ment of manufacturing industries is, therefore, great in these areas.

The important commercial products of these regions are wheat, barley, oat, rye, beet-sugar, flax, hemp, potatoes, apples, pears, dairy products and hard-wood timber.

10. THE COOL EAST-COAST MARGINAL REGIONS—The Cool Eastern marginal regions lie in the same latitudes as the Deciduous forest regions but occupy the eastern margin of the Continents. They include South-eastern Canada and North-eastern U.S.A. in North America, Northern Japan and Northern Manchukuo in Asia, and South-east Argentina in South America. There is no representation of this type either in Africa or Australasia. As the St. Lawrence basin is the most typical, these regions are also known as being of the *St. Lawrence* type.

Though situated in the same latitude the cool eastern marginal lands experience a more extreme climate than the Deciduous forest regions, the winters being much colder and the summer somewhat warmer than those of the Deciduous forests. The rivers are frozen and the ports are ice-bound in winter. The rainfall is evenly distributed throughout the year.

The natural vegetation is the forest of mixed Deciduous and Coniferous trees. Oak, silver fir, pine and spruce are found in large numbers. Agriculture is extensively practised in cleared areas. Wheat, barley, oat, rye and potatoes are grown. Poultry and dairy farming is also an important industry. Sheep, pigs and cattle are also reared.

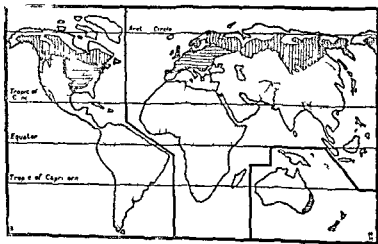
The climate though severe, is healthy and suited for human settlement. Like North-western Europe these regions have developed industrially.

The important commercial products of these regions are soyabeans, wheat, barley, oat, rye and timber.

11. THE CONIFEROUS FOREST REGIONS—The Coniferous Forest regions lie in a broad belt immediately to the north of the cool temperate zone. They include Alaska, Canada, Newfoundland, Scandinavia, Finland, Northern Russia, Northern Siberia and the south of South America. These regions are sometimes referred to as being of the *Taiga* type.

The Coniferous forests experience a very long and severe winter with short days and long nights. Summers are short

and cool with very long days and short nights. The range of temperature between summer and winter is great and is often as much as 100°F . Precipitation is small and the total rainfall hardly ever exceeds 20 inches except in places near the sea coasts. The greater part of the precipitation comes in the form of snow. The natural vegetation in these regions is the evergreen Coniferous forest or taiga of soft wood species such as pine, fir, hemlock, deal and larch. The trees have thick and resinous long pointed leaves to withstand cold and to minimise excessive evaporation. The Coniferous forests are the world's storehouse of soft wood timber. The climate of these regions is too cold for agricultural crops. Only the summer heat of the southern fringes permits the hardier cereal crops such as rye, oat and barley. Cattle and sheep are also reared on the southern borders of these forests.



Distribution of Deciduous Forest Regions (Horizontal line shades) and Coniferous Forest Regions (vertical line shades)

The typical animals of these regions are the silver fox, the chipmunk, rabbit, etc. which are naturally protected from the bitter cold by a thick fur. These regions are sparsely inhabited by hunters and trappers who obtain their food and cloths chiefly from the wild animals. Lumbering is the main occupation of the settled inhabitants. Wood distilling so as to yield turpentine, resin and wood tar is also extensively practised. The

development of the lumbering industry is largely dependent on accessibility of these forests. The trapping of fur-bearing animals for beautiful furs is another important occupation of the people. These forests are the world's main fur-producing regions.

The important commercial products are soft-wood timber, turpentine, resin, creosote, wood-tar and fur.

12. THE TUNDRA REGIONS—The Tundra Regions lie roughly within the Arctic and Antarctic circles. They include Northern Canada, Northern Alaska, Greenland, Spitzbergen Island, Northern Scandinavia, Northern Russia and Northern Siberia with many other adjacent islands in the Northern Hemisphere, and the whole of Antarctica in the Southern Hemisphere.

These regions experience very long and very cold winters, and very short but warm summers. The grounds are covered with snow throughout the greater part of the year and only in summer the snow melts for a few months only when the temperature ranges between 60°—70° F. Precipitation is scanty and mostly in the form of snow.

The natural vegetation in the Tundra regions is moss, lichen and grass with small shrubs and bushes. The polar regions are too cold for agriculture. In summer when the snow melts for a few months, there is a prolific growth of flowering herbs and plants.

Caribou, reindeer, musk ox, polar bear, polar fox and wolf are the typical animals. Bird life is plentiful. The penguin is the typical bird. Fishing is an important industry. Whales, seals and walruses are found in abundance. The Tundra regions are the least populated parts of the world. They are sparsely inhabited by backward tribes such as the Eskimos, Lapps, etc., who are stunted both physically and mentally. Food and clothing are mainly derived from the tundra animals. Hunting and fishing are the only occupations of the semi-nomadic people. Man's struggle for existence in these regions is very great and severe, for which these regions are called the *Regions of Privation*.

The important commercial products of these regions are few.

HIGHLAND REGIONS—The mountainous regions show a variety of climatic regions according to their elevations. A steady ascent in the Himalayan mountains will exhibit the same natural regions at different elevations as a poleward march from

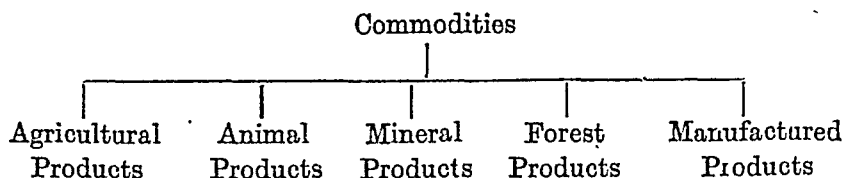
the equator. The climate of the highland regions can generally be divided into three classes —(a) warm in lowlands, (b) mild in the middle, and (c) cool in higher altitude. In these regions natural vegetation and the mode of livelihood undergo appreciable changes exactly in accordance with the climatic variation in different altitudes. The feet of the Himalayas are covered with evergreen forests due to the influence of the monsoon. A higher and higher ascent will exhibit gradually changing climate and natural vegetation as between the tropical and polar regions. In lowlands where there is existence of mineral resources mining becomes the principal occupation of the people, mention may be made in this connection of Mexico, Peru, Bolivia and South-east Africa. In the temperate mid highlands and plateaus maize, fruits and vegetables constitute the principal agricultural crops, and agriculture, although difficult, is the chief occupation of the people. In the cold climate of the still higher altitude cattle rearing constitutes the occupation of the people due to luxuriant growth of grass. Mountain tops are eternally covered with snow as is seen in the polar regions. Thus a wider variety of commercial products can be grown than might otherwise be possible, in highland regions.

CHAPTER IV

COMMODITIES

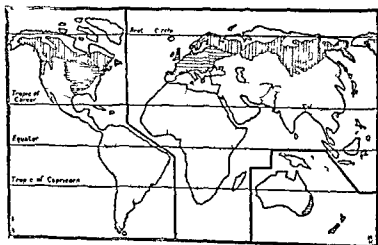
INTRODUCTION—Economic Geography primarily deals with geographical conditions which determine production, distribution and exchange of commodities. Different commodities of the world require different geographical conditions to grow. In the case of agricultural products, soil and climate mainly determine the variety obtaining at different places. In the case of minerals, the nature of the underlying rocks primarily determines their production. The production of commodities of commercial importance, therefore, is not an accident but the result of underlying geographical conditions. Again, the difference in geographical conditions causes different parts of the world to yield different commercial products. For example, Australia produces wool, but Italy produces silk. Economic geography, thus, not only describes the geographical conditions of production of different commodities but also their distribution. Besides, it gives a correct estimate of the varied economic resources of the world. Economic geography also refers to the trade and commerce in commodities, and thereby acts as a valuable guide to the students of commerce.

CLASSIFICATION—Commodities are of varied nature. Some commodities are of vegetable origin, some are of animal origin, some are minerals, etc. For the sake of convenience, commodities have been classified into five broad divisions based upon the sources from which they are derived, such as (i) Agricultural, (ii) Animal, (iii) Mineral, (iv) Forest, and (v) Manufactured products.



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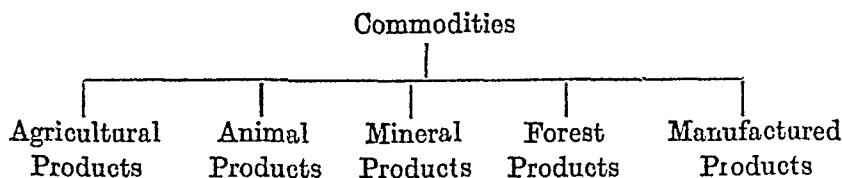
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Agricultural products refer to all the products of the soil in the production of which man plays a predominantly important

part Rice, wheat, maize, millet, etc, are examples of agricultural products

Animal products relate to all the products which are derived from the animal kingdom, e g, beef mutton, wool silk, etc

Mineral products include all the products which are derived from the wombs of the earth e g, iron, copper, tin, gold, silver, etc

Forest products refer to all the products of the vegetable kingdom in the production of which nature plays the predominant part For example, lac, resin, gum, timber, etc are forest products

Manufactured products refer to all the products which are derived after processing of different raw materials into finished states such as rayon textile goods potteries cutlery, etc

In the production of all the different types of commodities man plays a significant part Even the forest products cannot be grown without his aid and assistance The presence of minerals is meaningless unless they are extracted from the wombs of the earth and put to human use Human efforts and human energy are the basic requirement of all productions The present chapter is not opportune for an elaborate discussion of the important role which man plays in the production of all the different commodities of the world Subsequent chapters, however, will deal with a detailed description of all the different types of products, the geographical conditions of their production, their geographical distribution, and the part man plays in their production

CHAPTER V.

COMMODITIES—(contd.)

AGRICULTURAL PRODUCTS

INTRODUCTION—Agriculture is the primary industry of all countries. It provides food and clothing to the people, and raw materials to the manufacturing industries of a country. Self-sufficiency with reference to the agricultural products is an essential requirement of a country's economic prosperity.

Minerals and forest resources of the world may be totally used up and be extinct in course of time, but agriculture will last for ever as the mainstay of the population of the whole world. Consequently, although in modern times manufacturing industries have considerably developed in many countries, agriculture has still maintained its pre-eminence because of the fact that food and major portion of the industrial raw materials are derived from agriculture. In fact, man is entirely dependent, either directly or indirectly, on agriculture. Successful cultivation of agricultural crops mainly depends on several physical and nonphysical conditions. Of these soil, climate, labour-supply and transport facilities stand pre-eminent.

PHYSICAL CONDITIONS

Soil is an important determining factor in the production of agricultural crops. Highly fertile soil accounts for large production. Soils, however, are not of equal fertility, and vary according to their physical and chemical composition. According to the nature and fertility of soils, different crops are grown. Successive cultivation of the soil so as to yield agricultural crops year after year diminishes its fertility. To offset this tendency, intensive manuring and systematic rotation of crops are greatly practised.

In different countries different modes of cultivation are adopted. In "new" countries where lands are plenty and labour

is scarce, extensive method of cultivation is in vogue, such as in Australia, Canada and Argentina. But in "old" countries where the pressure of population on land is great, intensive method of cultivation is followed, such as in Holland, Denmark and Germany. According to the method of cultivation adopted, the yield of agricultural crops per acre varies as between different countries.

Temperature and rainfall, likewise, are the other two important factors in deciding the production of agricultural crops. Different agricultural products require different climatic conditions for their growth. Wheat requires moderate rainfall and moderate temperature for its successful cultivation while rice requires ample rainfall and high temperature.

According to the methods of farming adopted agriculture may be classified into three heads — (i) *humid farming*, (ii) *irrigation farming* and (iii) *dry farming*. There are regions where rainfall is moderate and the production of crops does not generally require any irrigation. Such cultivation is known as *humid farming*. In regions where rainfall is scanty, the deficiency in rainfall is often remedied by irrigation and dry farming and thus the regions otherwise unproductive, are made to yield agricultural crops. Irrigation is imperative in regions where winter is a dry season (e.g., Monsoon lands and tropics), where summer is a dry season (e.g., the Mediterranean regions), in regions of deficient rainfall, and in areas adjacent to deserts. Egypt has become a thriving and prosperous agricultural country by irrigation. There are arid areas however, where irrigation facilities are inadequate or totally absent and agriculture is purely dependent on the very meagre rainfall that occurs. Here dry farming is a necessity. By resort to dry farming, under which soil moisture is conserved, the arid and semi-arid regions in the U.S.A. are yielding valuable agricultural products. This includes (i) deep ploughing to enable greater and deeper sinking of water, (ii) terracing the land for controlled movement of rain water, (iii) spreading a layer of loose soil over the surface which prevents water from being evaporated etc.

In ancient times men were satisfied if they could meet their requirements of food and clothings from their own lands. In later stages with the advancement of knowledge when different countries came in contact with one another it became gradually apparent that standards of living could

not be improved with the aforesaid self-sufficiency in agriculture alone, and from that time the system of exchange came into being which gradually developed into its present stage. Attempts were being made everywhere to produce cash crops the export of which would enhance the economic condition of the country. The jute of Eastern Pakistan, the wheat of Canada, and the cotton of the U.S.A. constitute commercial crops or cash crops of this nature. One fact must, however, be borne in mind that these commercial or cash crops can be produced only once a year and greater endeavour for these cash crops will undoubtedly diminish the production of food grains, and consequently although the production of cash crops will lead to economic development, dependence for the essential food-stuff on foreign countries is inevitable. Moreover, under such circumstances the distress of the producer knows no bound if there is insufficiency or loss of production due to natural calamities or some other reasons, or if the buying capacity of the foreign consumers diminishes, or if production far exceeds the actual demand. Attention of the cultivators has, therefore, now been diverted to mixed farming instead of harvesting one crop a year. By mixed farming is meant cattle-rearing and production of food crops in the same field engaged for the production of commercial crop. The advantage of mixed farming is that due to the production of varieties of crops in a year the annual income of the cultivator, on an average, remains equal, his dependence on other countries greatly diminishes and above all the rotation of crops stops the rapid deterioration of fertility of the soil.

NON-PHYSICAL CONDITIONS

Even when geographical conditions are favourable, agriculture might not be profitable in a country unless economic conditions are present. *Quantity and quality of labour* is an important economic factor in the production of many agricultural crops such as tea, rubber, jute, sugar-cane, etc. Again, agriculture in modern times having passed from domestic stage to commercial stage, *transport facilities* and *nearness to market* largely determine the profitability of agricultural occupations. Nearness to the market does not necessarily mean short distance between the producing areas and the consuming markets, but it actually means the pres-

ence of all facilities for placing agricultural products in the consuming markets at a reasonably low price

CLASSIFICATION—Agricultural products are of wide variety. On the basis of climate or uses they may be classified into several broad groups. But all such classifications are more or less arbitrary for some of the products have wide climatic range or some may be used for more than one purpose, and are, therefore, likely to appear in more than one class. The classification of agricultural products according to their uses however, is common and is of the following nature (Page 51) —

FOOD CROPS

WHEAT—Wheat is the most important food stuff of the people of the temperate and sub temperate countries. Most of the wheat is used in making flours. A part of it is used for making *macaroni* and *vermicelli*; the favourite food of the Italians. The straw is chiefly used for fodder to the cattle. It is also used for making straw boards, mattresses and cheap papers.

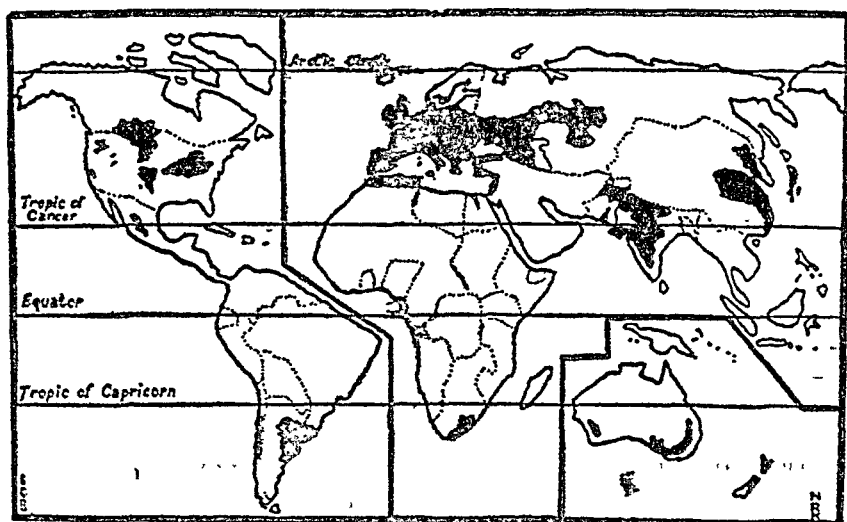
There are two main classes of wheat—(i) winter wheat and (ii) spring wheat. Winter wheat is sown in the autumn and harvested in the summer whereas spring wheat is cultivated in the spring and harvested in the late summer. In tropical countries like India and Pakistan wheat is a winter crop. In temperate countries where the winter is not too severe winter wheat is also grown. Owing to the geographical distribution of the wheat lands in the different parts of the world wheat is harvested throughout the year. In New Zealand and Chile wheat is mainly harvested in *January*, in India and Pakistan it is harvested in *February and March*, Egyptian wheat is harvested in *March and April*, the wheat of Mexico, Iran, China and Japan in *May*, the wheat of the Mediterranean lands in *June*, the wheat of Southern Russia and Northern USA in *July*, the wheat of Western Europe and Canadian prairies in *August and September*, the wheat of Northern Russia and Finland in *October*, South African and Peruvian wheat in *November*, and South Australian wheat in *December*.

Wheat thrives best in light clay soil or heavy loam. Good drainage is important for which gently sloping land is most suitable for wheat cultivation. The best wheat land, however, is sufficiently level to permit the use of machinery.

NORMAL WORLD PRODUCTION OF WHEAT*

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U.S.S.R. ..	17.4	Italy ..	5.0
China ..	15.0	Argentina ..	4.0
U.S.A. ..	12.6	Germany ..	3.2
India & Pakistan	6.5	Australia ..	3.0
France ..	5.8	Spain ..	3.0
Canada ..	5.5	Others ..	19.0
		Total	100.0

The most important wheat-producing countries of the world may be divided into *two* main groups :—(i) those which grow wheat for home consumption, such as the densely populated countries of Europe, U.S.S.R. and China ; and (ii) those which grow wheat largely for export. The sparsely populated “new” countries such as Canada, Argentina and Australia are examples of this group.



World Distribution of Wheat

There is a marked difference in the yield of wheat per acre as between the different countries. Generally speaking, in the older countries where intensive cultivation is largely practised the yield per acre is higher than that of the sparsely populated

*League of Nations' Statistical Year Book.

countries where extensive cultivation is in vogue. Thus, old countries like Holland, Belgium, Denmark, the United Kingdom and Germany have an yield of more than 30 bushels per acre, whereas in Australia, Argentina, Russia and the United States of America the average yield hardly exceeds 15 bushels per acre.

EUROPE—Europe produces roughly about 50% of the world's output but consumes over 60%. Russia produces the bulk of the European production. In fact she continued to be the largest producer of wheat until the outbreak of World War II. The deterioration in her output in recent years is attributed to the scorched earth policy she adopted when the mainland was over run by Germany and also to the devastation of her agricultural regions during the war period. The average yield per acre in Russia is as low as 11 bushels. The black earth region of Ukraine is the chief producing region. Odessa and Kherson, on the north coast of the Black Sea, are the principal wheat exporting ports of Russia. Russia, Rumania, Yugoslavia, Bulgaria, Hungary and Poland are the only European countries which are self-sufficing and have an exportable surplus in wheat. All other countries of Europe such as France, Germany, Italy etc., have large areas under wheat, but their productions are insufficient to meet domestic requirements. Great Britain is the largest importer of wheat consuming more than 40% of the world's total export.

AMERICA—The prairies of Canada and the northern United States are the most productive wheatlands of North America. The wheatlands of the U.S.A. lie in Kansas, North Dakota, Nebraska, Oklahoma, Montana, Illinois, Texas, Washington, Missouri, Minnesota, Ohio, Indiana, etc. The great wheat centres of the U.S.A. are Minneapolis, Chicago and Duluth. The U.S.A. formerly held a very important place in the export trade of the world. In recent years her export surplus, however, lessened greatly. New York handles the bulk of her export trade in wheat. Canada is said to be the *granary of the British Commonwealth of Nations* and is the world's largest exporter of wheat. The wheatlands of Canada lie in Manitoba, Saskatchewan, Alberta and Ontario. Winnipeg is the chief collecting centre and is the world's leading wheat market. Montreal, Vancouver, St. John, Portland and Halifax are the important wheat exporting ports of Canada.

In *SOUTH AMERICA* Argentina and Chile are the two important producers. Argentina ranks second as a wheat exporting country in the world. Buenos Aires is the chief wheat exporting port.

ASIA—In Asia, the important wheat growing countries are China, India, Pakistan, Japan and Manchukuo. The principal wheat producing areas in Indian Union are Uttar Pradesh, East Punjab, Madhya Pradesh, Bihar, Bombay, Hyderabad, West Bengal and Madhya Bharat, while those in Pakistan are West Punjab, Sind and the North-West Frontier Province. In the production of wheat India including Pakistan ranks fourth in the world. India consumes the whole of her output while Pakistan in good years has some exportable surplus. Pakistan's wheat is chiefly exported through Karachi Port.

AFRICA—Small quantities of wheat are produced in Egypt and the Mediterranean regions of both North and South Africa.

AUSTRALIA—Australia and New Zealand are the two important producers in Australasia. Australia is the third largest exporter of wheat and Adelaide is the principal wheat port of Australia.

International trade in wheat and wheat flour exceeds that in all other grains. Approximately 14% of the total output enters into export trade and the rest is consumed locally. Generally speaking, the countries of western Europe where the manufacturing industries are highly developed are the chief importers. With the exception of Russia, Rumania, Hungary, Poland, Yugoslavia and Bulgaria the whole of Europe relies upon foreign supplies to meet their domestic requirements. The United Kingdom heads the list of the importing countries. China, Japan, Indian Union and Brazil also import small quantities of wheat.

The principal exporters are Canada, Argentina, Australia, U.S.A. and Russia. Canada, Argentina and Australia account for 80% of export trade in wheat. In recent years U.S.A. and Russia greatly reduced their export as a result of increased home demands. Pakistan, Rumania, Hungary, Poland, Yugoslavia, Bulgaria are also exporters of wheat.

The position of the world's wheat trade in 1950—51 was as follows :—

Total amount of wheat exported=25 000 000 metric tons *

PRINCIPAL EXPORTERS		PRINCIPAL IMPORTERS	
Countries	Per cent	Countries	Per cent
U S A	39.2	Europe	55.6
Canada	24.4	Asia	22.4
Australia	13.6	South America	8.8
Argentina	11.2	Africa	5.6
Others	11.6	Others	7.6
Total		Total	
	100.0		100.0

BARLEY—Barley is one of the principal cereal crops of the world. It is used as a human food. But the chief use of barley is in the preparation of alcoholic drinks such as whisky and beer. Barley is also used for feeding horses, cattle and pigs. Barley is not so rich in gluten as wheat for which it is not so much used for the making of bread now a days.

Barley resembles wheat greatly in manner of growth. It flourishes in any soil which suits wheat. It can thrive even in poorer soils. Due to the shortness of its growing season, barley has a wider range of climate than wheat. It can be grown as far north as in Norway where the climatic conditions are too cold for wheat and in the subtropics such as the U.S.A. The Mediterranean climate is ideal for cultivation of barley of good quality.

The acreage of land devoted to the production of barley is roughly one fourth of that for wheat. The relative position of the different countries in production of barley is shown in the following table —

WORLD PRODUCTION OF BARLEY IN 1951

(Excluding Russia)—49 000 000 Metric Tons

Countries	Per cent	Countries	Per cent
China	13.7	Indian Union	4.8
U S A	11.3	United Kingdom	4.4
Canada	10.9	Spain	4.0
Turkey	5.5	Others	45.4
Total		Total	
	100.0		100.0

*United Nations The State of Food and Agriculture
(Review and Outlook) 1951

NORMAL WORLD PRODUCTION OF BARLEY

<i>Countries</i>		<i>Per cent</i>	<i>Countries</i>		<i>Per cent</i>
China	...	19.4	Japan	...	6.4
U.S.S.R.	...	18.0	India & Pakistan		5.9
U.S.A.	...	10.5	Spain	..	5.6
Germany	..	8.1	Others	..	26.1
					<hr/>
					Total 100.0

Europe produces nearly half of the total world output. Russia, Germany, Spain, Rumania, Denmark, France, Czechoslovakia and Poland produce bulk of the European production, Russia alone contributing 18%. In Asia, China, Japan and India including Pakistan are important producers. Most of the barley-producing areas of undivided India lie in Indian Union. China heads the list of the world producers. U.S.A. and Canada produce large quantities of barley in North America. Production of barley in Southern Hemisphere is negligible. Argentina and Australia produce barley, mostly for export.

Great Britain is usually the largest importer of barley. The other important importing countries in order of importance are Belgium, Holland, Switzerland and Germany. The principal exporters are Rumania, Argentina, Poland, Canada, U.S.A., Russia and Australia.

RYE—Rye ranks next to wheat as an important food grain. It is the principal food-stuff of the poorer section of the people of central and eastern Europe who cannot afford the price of wheat. Rye is used in the making of alcoholic drinks such as vodka, rye-whiskey, etc. The straw and grain are both used as fodder to the cattle. The straw is also largely used for packing and in the manufacture of pasteboard and cheap paper. The lower part is cut into drinking straws.

Rye is definitely a crop of cool and moist climate. It can grow well in poor soils unsuited for wheat and can withstand more severe climate than wheat. These geographical conditions distribute the crop in the northern part of the temperate zone where the climate is severe and soil poor. Rye is grown in the north of the wheat belt and is essentially a northern crop.

The total world production of rye in 1951 excluding Russia and China was estimated to be 19,900,000 metric tons.

In Europe, the acreage under rye is very large in Russia, Germany and Poland. Normally Russia is the largest producer producing above 46.5% of the world's total production. Germany ranks second to Russia with about 16.3% of the world's total. Poland is the third largest producer with 14%. Other important producers are Czechoslovakia, Hungary, the Baltic countries and Rumania. Europe produces the bulk of the world production and contributes more than 90% of the world's crop. Rye is also cultivated in U.S.A., Canada and Argentina.

Rye is generally used for home consumption, and as such enters very little into world trade. The rye consuming countries of Europe are the chief importers while Canada, U.S.A. and Argentina supply the bulk of the European demand.

OATS—Oats are chiefly used as fodder for horses and cattle. They are also used for human consumption to some extent. Oatmeal porridge is a favourite food of the Scotch people.

Like rye, oat thrives well in regions of cool and moist climate, and poor soils although loamy soil is considered best. Oats also, are essentially a northern crop. Oats cannot withstand severe winter conditions like rye. They, therefore, are grown as a summer crop. Successful cultivation of oats requires wet cool climate in the initial stage to be followed by dry climate and sunshine in the final stage.

The total world production of oat in 1951 (excluding U.S.S.R.) was estimated to be 50,700,000 metric tons. Based on the normal production however, it can be safely said that the U.S.S.R. is the largest producer of oats, producing as much as one fourth of the world's total production. U.S.A. is a close second to Russia with 20% of the world's total. Germany also is a large producer with 9.4% of the total and ranks next to U.S.A. in importance. France, Holland, Belgium, Denmark, British Isles, Scandinavia, Poland and the Baltic States are the other important producers in Europe. On the whole, Europe produces more than half of the world's oats. Canada also produces large quantities of oats. Argentina and Chile are the only important oat producing countries in the Southern Hemisphere.

Oats are chiefly grown for home consumption and there is a very little international trade in oats. Canada, Argentina and Chile are the chief exporters. The leading importing countries

are Great Britain, Holland, Denmark, Belgium, France, Switzerland and Italy.

RICE—Rice is the most important food-stuff of the people of South-eastern Asia. A part of rice is used in the preparation of alcoholic drinks such as beer, etc. A large quantity of starch is made from it. The straw is chiefly used for fodder to the cattle. A large part of it is used for thatching roofs etc. Its other industrial uses are in the manufacture of ropes, bags, mattresses, etc.

There are two main classes of rice :—(i) Upland or hill rice, and (ii) Lowland or swamp rice. Upland rice is grown generally on hill slopes and requires relatively small amount of moisture. Swamp rice is grown on level plains capable of being flooded. This variety is most common and most abundantly produced.

According to the time of cultivation and the technique of production rice grown in Indian Union and Pakistan can be divided into three groups :—(1) *Aus rice* which is sown before summer and harvested after summer, (2) *Boro rice* which is sown after summer and collected in the rainy season, and (3) *Aman rice* which is sown during the monsoon period and reaped in autumn.

Rice thrives best in alluvial or heavy clayey soil. Water-logging is essential for its successful growth. Rice is, therefore, cultivated in flat plains with carefully raised embankments on all sides to retain water. Even the hill slopes are cut into terraces, one below the other, and each one with its own embankments.

Rice is a typical crop of the tropical and sub-tropical regions, and climate is an important factor for its successful cultivation. High temperature and heavy rainfall are essential for its growth. Broadly speaking, the temperature should range from 60° F. to 80° F., and the rainfall should be between 40" and 80" inches, the heavier precipitation, however, producing the better crops. In the growing season, rice requires an abundant rainfall and high temperature, but at the time of ripening, dry hot climate is ideal. One important economic factor required in the successful production of rice is a large supply of cheap labour.

There is a marked difference in the yield per acre among the different rice-producing countries according to the method of cultivation adopted; for example, India—731 lbs.; U.S.A.—1,481 lbs.; Japan—2,307 lbs.; Egypt—2,079 lbs., and Italy—3,000 lbs., these, of course, being the normal production figures.

No other food grain yields so large an amount of yield per acre as rice, and hence rice is cultivated wherever its cultivation is possible. From the point of view of production, Asia leads over all other continents. The relative position of the different countries in the production of rice in 1951 is given in the following table —

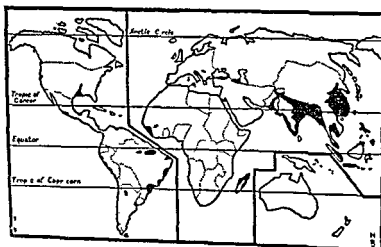
WORLD PRODUCTION OF RICE IN 1951

(Excluding U S S R) = 153,100,000 Metric Tons

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
China	31.5	Burma	3.6
India	20.7	Brazil	2.0
Pakistan	7.7	Philippines	1.8
Japan	7.4	Others	20.6
Thailand	4.7	Total	100.0

NORMAL WORLD PRODUCTION OF RICE

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
China	35.5	Indo China	4.3
India	28.7	East Indies	3.8
Japan	8.2	Thailand	3.2
Burma	5.3	Others	11.3
		Total	100.0



World Distribution of

Maize has a wide range of climate but is essentially a warm temperate crop. To grow well it requires a good well-drained soil. Loamy soils rich in plant foods are the best. Maize is essentially a summer crop and requires a long warm summer ($4\frac{1}{2}$ to 7 months) with frequent rains and much sunshine. The amount and distribution of rainfall largely determine the quality and production of the crop. Frost is very harmful to its satisfactory production. Maize requires a temperature ranging between 45° and 75° F. with average rainfall per month from 3" to 6".

Maize ranks next to wheat in importance so far as world production and acreage sown under it are concerned. In yield per acre it is next to rice. The yield, however, varies as between different countries from 41 bushels to 12 bushels per acre.

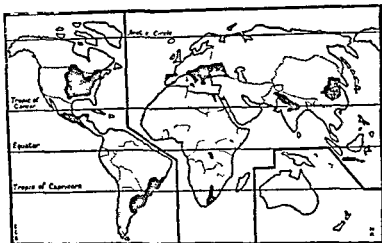
The world production of maize in 1951 excluding Russia was estimated to be 131,600,000 metric tons.

Based on the normal production, the relative position of the different countries in the production of maize is as follows ;—

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U.S.A	55	Rumania	5
Argentina-	8	Yugoslavia	4
China -	6	Others	17
Brazil	5		
		Total	100

The U.S.A. easily leads over all other countries in the production of maize. The maize belt in America lies, generally, speaking, south of the summer wheat belt and stretches mainly from Eastern Nebraska, through Iowa, Illinois and Indiana to Ohio. The Argentina production is next to that of the U.S.A. Though the U.S.A. produces more than half of the world's total, she hardly exports, her enormous production being locally used for stock-rearing purposes. Argentina is easily the largest exporter of maize though her production is much less than that of the U.S.A. Besides the U.S.A. and Argentina, other important producers are China, India, Pakistan and East Indies in Asia; Rumania, Yugoslavia, Russia, Italy, Hungary, Bulgaria, Spain, Portugal, Southern France and Czechoslovakia in Europe; Brazil, Peru, Chile and Uruguay in Southern America; Mexico; Central America; the Union of South Africa in Africa; and Queensland and New South-Wales in Australia.

Though the world production of maize is quite large, only a small percentage of the total production enters into international trade the rest being consumed locally. Among the exporting



World Distribution of Maize

countries, Argentina, Rumania, Yugoslavia, Russia and the Union of South Africa are important. Argentina alone contributing more than half of the exportable surplus. Most of the Argentine maize is exported through the port of Buenos Aires. The chief importing countries are the United Kingdom, Holland, Denmark, Belgium, France, Italy and Germany.

A comparative study of maize and wheat is given below —

MAIZE

- 1 Warm temperate crop
- 2 Average output per acre—12 to 41 bushels
- 3 Principally used as fodder
- 4 Loamy soil rich in plant food ideal
- 5 Temperature between 45°—75° F and rainfall between 20" and 50" required
- 6 Insignificant world trade

WHEAT

- 1 Typical temperate crop
- 2 Average output per acre—15 to 30 bushels
- 3 Staple foodgrain
- 4 Light clay soil ideal
- 5 Moderate temperature between 40° F and 60° F and moderate rainfall between 15" and 40" required
- 6 Extensive world trade

MILLET—Millets are the staple food grains of the drier regions of the tropical lands, and probably a quarter of the world's population lives on them. They make a good fodder for the cattle and are extensively used for that purpose in the U.S.A.

There are principally two varieties of millets—"the Great Millet" or Jowar and the "Spiked Millet" or Bajra.

Millet is essentially a tropical crop. It thrives best in warm and dry climate with less amount of rainfall than that required for maize. The soil most suitable for its successful cultivation is the well-drained fertile soil, but even poorer soils can produce millets.

The important millet-producing countries are India, China, Manchukuo, Japan, Uganda and the U.S.A. Millets are mostly produced for local consumption as food-stuff, or fodder for the cattle and as such there is very little international trade in millets.

BEVERAGE CROPS

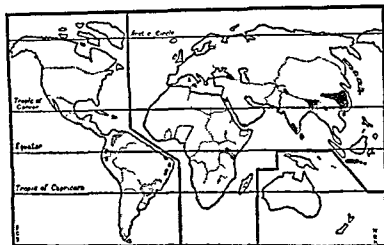
TEA—Tea is obtained from the dried leaves of an evergreen shrub which is a native of China. It owes its value to the stimulant (caffeine) which it yields. It is the world's most important beverage crop. The Canadians, the Chinese, the Russians, the New Zealanders, the Australians and the British are the great tea-drinkers of the world.

There are two varieties of tea—(i) Black tea and (ii) Green tea. Both black tea and green tea are derived from the same plant but their process of production is different. The preparation of black tea consists of the process of (i) withering or drying the newly-picked green leaves in the sun, (ii) then rolling, (iii) fermenting, and (iv) roasting. In the preparation of green tea, there is no fermentation process. The leaves are roasted directly after they are rolled.

The soil best suited to the tea plant is the well-drained fertile, virgin soil, rich in humus. The presence of iron in the soil is all the more helpful. Since stagnant water is very much harmful to the plant, well-drained hill-slopes afford the best sites for tea cultivation. Abundant rainfall ranging from 80" to 100" annually and high temperature between 60° and 80° F. are the ideal climatic conditions for its successful growth. Tea is one of the hardiest tropical plant and can withstand exposure to frost.

The successful cultivation of tea plant does not depend mainly upon the soil and climate. Labour is also an important factor

for its cultivation. In the picking withering rolling and other different processes of making tea cheap skilled manual labour is essential. This economic consideration has caused tea production to be concentrated principally in monsoon lands.



World Distribution of Tea (black) and Coffee (dotted)

China India Ceylon Eastern Pakistan Indonesia and Japan are the principal tea-producing countries of the world. China easily leads over all other countries in the production and consumption of tea. The next important producer is India followed in order of importance by Ceylon Indonesia and Japan. Tea is also produced by Jamaica Nyasaland Burma Malaya the Union of South Africa (Natal) Brazil the U.S.A. and Russia. The experimentation of tea production in Trans Caucasia (Georgia Armenia and Azerbaijan) in Russia has proved successful and Russia in no time will be an important producer of tea in the world. The world production of tea in 1931 excluding Russia and China was 581 000 metric tons.

Though China is the largest producer of tea in the world her contribution to the world trade is not great since most of her production is consumed locally. India leads in the world's export trade of tea. Ceylon and Indonesia rank next in importance to India so far as the export trade in tea is concerned. Other minor exporters are China, Japan and Formosa. The principal tea import

ing countries of the world are the United Kingdom, U.S.A., Australia, Canada, Russia and Holland. The United Kingdom is the chief importer, importing more than 50% of the world's imports, and London is the leading tea-market of the world. India and Ceylon provide more than 90 per cent of the British imports.

COFFEE—Coffee is a drink prepared from the seeds or beans of the evergreen coffee tree. The seeds are roasted and powdered before they are used as a drink. Coffee is a favourite drink of the Dutch, the Belgians, the Swedes, the Americans and the French.

Coffee is a tropical crop requiring the identical geographical conditions as tea for its successful cultivation. Coffee plant requires a fertile, well-drained soil, for which it is usually cultivated on hill-slopes. High temperature (65° - 85°) and a fairly abundant rainfall ranging between 70" and 90" are the ideal climatic conditions for coffee. Strong sunshine and high winds are both fatal to coffee plants, for which bananas and other shady trees are grown on coffee estates to shelter the plants in their early stage. Coffee plant is highly susceptible to frost, for which it is generally cultivated on hill-slopes at a lower elevation and in a warmer climate than tea. Like tea, the production of coffee also requires an abundant supply of cheap labour.

The principal coffee producing-countries of the world are Brazil, Colombia, Indonesia and Venezuela. Normally Brazil produces 60 per cent of the world's coffee, followed by Colombia which accounts for over 10 per cent of the world output. Other important coffee-producing countries are Salvador, Mexico, West Indies, Central America, Ecuador, Guiana, Bolivia, British East Africa, Ceylon, Southern India and Arabia. Arabian coffee is the finest in quality and is mostly in demand. It is popularly known as *Mocha coffee*.

The relative position of the different countries in the production of coffee in 1951 is given in the following table:—

WORLD PRODUCTION OF COFFEE IN 1951

=2,300,000 Metric Tons*

Countries	Per cent	Countries	Per cent
Brazil ...	46.9	Salvador ...	2.5
Colombia ...	16.5	Venezuela ...	1.8
Mexico ...	3.2	Others ...	29.1

*United Nations' Statistical Year Book, 1952.

Coffee is grown almost exclusively for export and as such there is an extensive world trade in coffee. The bulk of the world's coffee comes from South America, Central America and West Indies. In the export trade of coffee Brazil easily leads over all other producers exporting as much as 50 per cent of the world's total. Santos and Rio de Janeiro are her two important coffee exporting ports. The other important coffee exporting countries are Colombia, Indonesia, Venezuela, Central America, West Indies, Ceylon etc. The largest importer of coffee is the U.S.A. which imports nearly 45 per cent of the total imports. Germany, France, Sweden, Holland, Belgium and Italy are the other important importers of coffee.

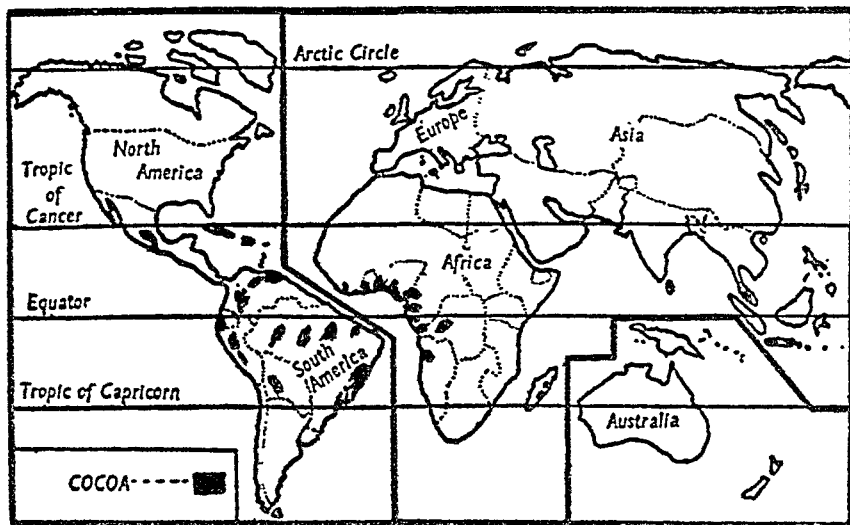
A COMPARATIVE STUDY OF TEA AND COFFEE

TEA	COFFEE
1 A tropical and sub tropical crop	1 Essentially a tropical crop
2 A beverage crop	2 A beverage crop
3 The dried leaves of an evergreen shrub	3 The roasted and powdered beans of an evergreen tree
4 Highly well drained soil rich in humus ideal	4 Highly well drained soil rich in humus ideal
5 High temperature between 60° and 83° F required	5 High temperature between 60° and 85° F required
6 Abundant rainfall ranging from 80" to 100" ideal	6 Fairly abundant rainfall ranging from 70" to 90" ideal
7 High wind and strong sunshine not injurious	7 High wind and strong sunshine injurious
8 Shelter by shady plants not required	8 Shelter by shady trees essential
9 Not susceptible to frost	9 Very susceptible to frost
10 An abundant supply of cheap labour essential	10 An abundant supply of cheap labour essential

COCOA—Cocoa is obtained from the beans or seeds of the cocoa tree. Cocoa beans yield two products—powdered cocoa and cocoa butter. The powdered cocoa is used as a beverage and

in the making of chocolates. The cocoa-butter is used as a lubricating oil and for other industrial purposes. Cocoa beans have to undergo a preliminary treatment before they can be used for consumption. The beans are collected, fermented, dried in the sun and roasted. After roasting they are pressed to yield cocoa-butter, and thereafter they are powdered. The powdered cocoa is mostly used as a nourishing beverage. Cocoa is a favourite drink in Spain, U.S.A. and Germany.

Cocoa is essentially a product of the equatorial regions. For its successful cultivation, the cocoa tree requires a deep, fertile, well-drained soil, an uniformly high temperature and abundant rainfall well-distributed throughout the year. Soil mixed with alluvium or lava is considered ideal. Like coffee, the cocoa trees cannot withstand the direct rays of the sun, for which along with them, rubber trees and such other shade trees are also grown. The cocoa trees are also to be sheltered from strong winds. They are, therefore, best grown in lowlands and sheltered valleys.



World Distribution of Cocoa

The most important cocoa-producing countries are the Gold Coast, Brazil, Nigeria, the West Indies, Indonesia, Ecuador, Venezuela, Ivory Coast, Colombia and Central America. The Gold Coast supplies nearly 40 per cent of the world's output.

Cocoa, like coffee, is largely grown for export. The principal cocoa exporting countries are Gold Coast, Brazil, Nigeria, Ivory Coast, Venezuela, Ecuador, the West Indies and Colombia. The U.S.A., Germany, United Kingdom, Holland, France, Spain and Switzerland are the principal importers, U.S.A., being the largest consumer, absorbing 40% of the world's total output.

FRUITS

FRUITS—Formerly, fruits were not important commodities of international commerce due to their high perishability. The modern developments of fast transport services, and the highly scientific methods of fruit preservation by cold storage, refrigeration and canning etc., have, however, widened the markets for fresh fruits greatly in recent times and fresh fruits are now a days entering more and more in international commerce. Fruits may be broadly classified into two main groups —

(i) the tropical fruits such as Bananas, Pineapples, Dates and Mangoes, etc., and

(ii) the temperate fruits such as Grapes, Oranges, Apples, Pears and Peaches etc.

TROPICAL FRUITS—The banana is the most important of all the tropical fruits. The banana is an annual plant, but the root persists and shoots out new plants. Deep fertile soil, high temperature and abundant rainfall are essential for its successful cultivation. The principal producing countries are Central America, the West Indies, Colombia, Brazil, Mexico, the Hawaiian Islands, the Canaries and Formosa. There is an extensive world trade in bananas between the U.S.A. and Europe on the one hand and the producing countries on the other.

The pineapple thrives best on light, sandy soil. High temperature and abundant rainfall are required. Proximity to the sea is an added advantage for its successful cultivation. The chief producing countries are the West Indies, Malaya, Thailand, Hawaii and the Canaries. There exists a fairly important trade in pineapples between the producing countries, and the U.S.A. and Europe, the principal consumers.

Dates are the fruits of the desert oases. The tree requires great heat. Iran, Iraq, Syria, Egypt, Algeria, Morocco and Tunis are the principal producing regions and Basra in Iraq is the most important date exporting port of South western Asia.

Mangoes are widely grown in India and Ceylon but there is very little international trade in mangoes.

TEMPERATE FRUITS—Grapes are the most important of all the temperate fruits. They are consumed both as fresh fruits and as dried fruits in the form of raisins and currants. Grapes are also extensively used for the manufacture of wine. They are the typical fruits of the Mediterranean region. Well-drained soil, moderate rainfall and mild climate followed by dry, warm summers are favourable for their successful cultivation. The chief grape-producing countries are France, Italy, Spain, Portugal, Turkey, Southern Russia, Greece, Asia Minor, Bulgaria, Algeria, the U.S.A. (California), south of South Africa, Central Chile and South Australia. The important grape-producing countries are also the great wine manufacturers of the world. There is an extensive world trade in wine as well as in fresh and dried grapes.

The orange is the typical citrus fruit of the Mediterranean regions. It is also grown in tropical regions. The orange is chiefly produced by Spain (marmalade orange), Italy, Portugal, Sicily, Malta and Southern France in Europe; California and Florida in the U.S.A.; West Indies; Brazil and Central Chile in South America; China, Iran, Pakistan, Palestine and India in Asia; and the Mediterranean regions of Africa and Australia.

The apples, pears and peaches are the typical fruits of the deciduous forest regions and are produced in abundance by the U.S.A., Canada, Southern Australia, New Zealand, U.K. and the north-western countries of Europe. Besides, peaches, apricots, figs, almonds and lemons are the other important fruits of the temperate regions.

OTHER FOOD CROPS AND DRUGS

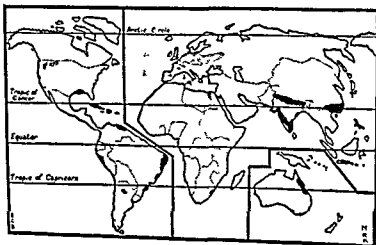
SUGAR—After cereals sugar is the most important and most widely used food product of the world. Sugar is derived from various sources such as the sugarcane, the sugar-beet, the maple, the date palm, the palmyra palm, the cocoanut palm, etc. But sugar on a commercial scale is mainly obtained from two sources—(i) the sugarcane and (i) the sugar-beet.

SUGARCANE—Sugarcane is at present the chief source of sugar. It contributes as much as 60 per cent of the world's

total production of sugar Sugar is derived from the juice of the stems of the sugarcane The stems after being crushed, and the leaves are used as fuel and also in the making of cheaper grades of paper The by product in the refining of sugar from cane juice is the molasses which can be used for the manufacture of power alcohol, rum, agricultural manure and road making materials

Sugarcane is a product of the tropical and sub tropical regions It is perennial, the stalks are cut annually but the roots grow new stalks every year for a period of 3 to 5 years Sugarcane grows well on rich well drained porous or alluvial soils It requires high temperature ranging from 60° to 80°F and abundant rainfall varying from 40" to 70" inches annually The nearness to the sea of the sugarcane producing regions is beneficial and it is for this reason islands and coastal areas of the tropical and temperate regions are considered ideal for its successful cultivation Based on the normal world production the relative position of the principal cane sugar producing countries of the world usually comes up as follows —

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
India	— 10	The Philippines	— 7
Cuba	— 15	Hawai	— 6
Java	— 8	Formosa	— 6
Brazil	— 7	Others	— 31



World Distribution of Cane (black) and Beet (dotted)

It will be evident from the above table that India is the world's largest producer of cane-sugar, the middle and upper parts of the Gangetic plain being the largest producer. Other important producing countries are the West Indies, Mexico, Brazil, the South-eastern States of the U.S.A., Guianas, Argentina and Peru in America ; Mauritius and Natal in Africa ; Queensland in Australia ; Indonesia, French Indo-China, Formosa, the Philippines and Thailand in Asia. Sugar holds a significant position in the national economy of Java.

The economic development of Cuba depends to a great extent on the successful cultivation of sugarcane. Cuba alone supplies one-third of the world's total requirement. Consequently, huge capital has been invested in this industry and vast areas have been devoted for the cultivation of sugarcane crop.

Though India leads in the matter of production of cane-sugar, her contribution to the export trade of the world is almost nil, the whole output being consumed locally. The most important cane-sugar exporting countries of the world are Cuba, Java, Hawaii, Mauritius, the Philippines, Peru and Mexico. The chief importers of cane-sugar are the United Kingdom, other European countries, and the United States followed by Japan, Canada and Pakistan.

SUGAR-BEET—Sugar beet yields as much as 40 per cent of the world's total output of sugar. Sugar is obtained from the juice of the root of the sugar-beet. The refuse known as the beet-pulp is used as cattle-food.

The sugar-beet is a temperate crop. It is grown as an annual plant. It thrives best in well-drained, rich and heavily-manured soil. It requires moderate rainfall varying from 15" to 40" inches and moderate temperature ranging from 40° to 60°F. for its successful cultivation. Bright sunshine is conducive to the growth of sugar-beet and hence its cultivation in comparatively high latitude gives satisfactory yield. Continental climate, however, is ideal if there is adequate rainfall.

Taking into consideration the average normal output, the relative position of the important beet-sugar producing countries of the world may be stated as follows ;—

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U.S.S.R.	— 21	France	— 10
Germany	— 15	U.K.	— 6
U.S.A.	— 13	Czechoslovakia	— 5
		Others	— 30

The continental countries of Europe and the U.S.A. are the chief sources of supply. U.S.S.R. being the largest sugar beet producer in the world contributes nearly one fourth of the world's total output of beet sugar. The other important producing countries are Poland, North Italy, Holland, Belgium, Spain, Rumania and Hungary.

Beet sugar is mainly produced for home consumption and as such there is no significant world trade in beet sugar. The little that is exported is contributed by Germany, Czechoslovakia, Poland and Russia and the chief importing country is the United Kingdom.

Although much inferior to cane sugar, so extensively was sugar beet cultivated before the world war of 1914 that beet sugar accounted for as much as 40% of the world's total output of sugar. But in course of the next five years its production gradually declined and finally came down to 25% only. Up to 1914 Germany headed the list of sugar beet producers and even up to the second world war her supply of beet sugar amounted to 20% of the world's total sugar requirement. Russia is now the leading producer of sugar beet and her contribution to the world market is about one fourth of the total supply. Formerly Great Britain was the leading importer of beet sugar from Germany and France, but the importation has now been practically stopped by imposing heavy import duty with a view to safeguarding colonial interests in the production of cane sugar.

A COMPARATIVE STUDY OF SUGARCANE AND SUGAR-BEET

<i>SUGAR CANE</i>		<i>SUGAR BEET</i>	
1	A tropical crop	1	A temperate crop
2	A perennial crop the root stalk throwing up new shoots from 3 to 5 years	2	An annual crop
3	Sugar from the stalk of the sugar cane	3	Sugar from the root of the sugar beet
		4	Well-drained heavily manured loamy soil ideal

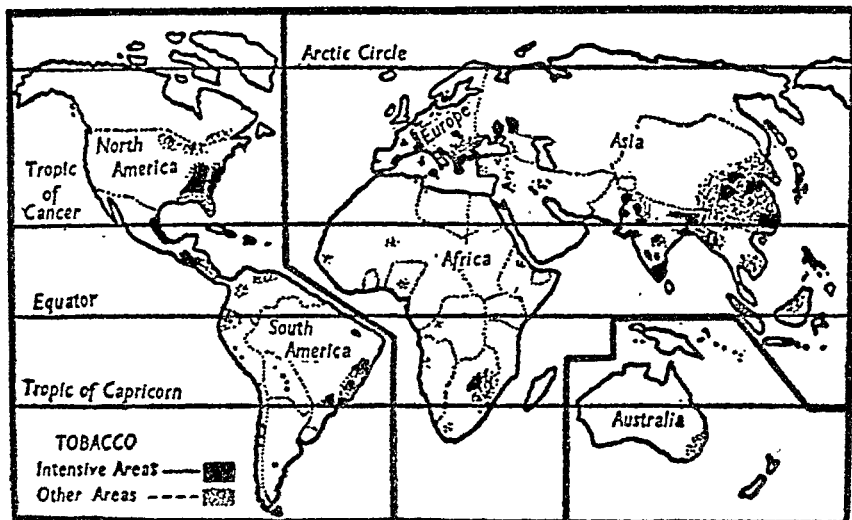
SUGARCANE

4. Well-drained, porous soil ideal.
5. Abundant rainfall (40" to 70") and warm temperature (60° to 80°F.) required.
6. Nearness to the sea beneficial.
7. Abundant supply of cheap labour essential.
8. Yield per acre greater.
9. Cultivation not difficult.
10. Production of sugar easy and less expensive.
11. Machinery not greatly used.

SUGAR-BEET

5. Moderate rainfall (15" to 40") and moderate temperature (40° to 60°F.) required.
6. Nearness to the sea not required.
7. Adequate supply of trained labour required.
8. Yield per acre not so great.
9. Careful cultivation and great attention largely required.
10. Production of sugar highly technical and expensive.
11. Elaborate machinery largely used.

TOBACCO—Tobacco is prepared from the dried and cured leaves of the tobacco plants. It is principally used for smoking, chewing and such other purposes for its stimulating and narcotic properties. It is also used in medicine and in making insecticides for the protection of plants and animals.



Tobacco Regions of the World

Tobacco is a tropical plant principally but it has a wide range of climatic conditions, for which it can be grown both in the temperate and tropical regions. But the quality of the tobacco produced varies greatly according to the nature of the soil and climate. For its successful cultivation however, the soil should be well drained, and rich in lime and potash. Tobacco is a very exhausting crop so that the tobacco lands are to be systematically manured to yield large crops. The only climatic limitation as to its cultivation is that the tobacco plant cannot withstand frosts. One important economic factor which largely determines the production and cultivation of tobacco on a commercial scale is the availability of an abundant supply of cheap labour.

The U.S.A. is the largest producer of tobacco in the world, contributing nearly 30% of the world's total output. India, China and Russia are next in importance. The other important producers are Brazil, West Indies, Argentina and Canada in America; Japan, Indonesia, India, Pakistan, Malaya and the Philippines in Asia. Italy, Greece, Turkey, Bulgaria, Germany, France and Hungary in Europe, and Algeria, Rhodesia and Nuyasaland in Africa. Of all the producers Cuba is well noted for the quality of its cigars which are known as the Havana cigars after the name of the port of their export. The relative position of the different countries in the production of tobacco in 1951 was as follows —

WORLD PRODUCTION OF TOBACCO

(Excluding U.S.S.R.) = 3,180,000 Metric Tons

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U.S.A.	33.2	Pakistan	.. 2.1
Indian Union	7.2	Greece	.. 2.0
Brazil	.. 3.7	Others	.. 49.2
Turkey	.. 2.6		

Tobacco occupies an important place in the list of commodities entering into international trade of the world. The chief exporting countries of tobacco are the U.S.A., Cuba, Indonesia, Brazil, Bulgaria and Turkey. The chief importers are the countries of North-western Europe, especially the United Kingdom, Germany and France.

India including Pakistan produces nearly 10% of the world's total output of tobacco. Most of the tobacco produced is consumed

locally and very little is left for export to Great Britain, Japan, Aden, Germany, Holland, France, Hongkong, Malaya, Straits Settlements, etc.

CINCHONA—Cinchona is highly valued for its medicinal uses. The barks of the cinchona trees yield extracts, the best known of which is quinine, an effective medicine for malaria.

Cinchona is a typical tropical tree. It grows in mountainous regions at an altitude from 3,000 to 6,000 feet above sea level. The best climatic conditions favourable for its growth are a fairly high temperature, an abundant rainfall and plenty of sunshine.

Java is the most important producer producing over 90% of the world's total. Ceylon, Indian Union, Colombia and Peru are the other important producers. The United Kingdom is its chief importer.

OPIUM—Opium is a powerful narcotic prepared from the juice of a cultivated species of poppy. Opium is chiefly used as a stimulant. It is also used in the preparation of medicines.

The poppy plant grows both in the tropical and temperate climates. The temperate plant, however, does not produce opium.

The chief opium-producing countries are Indian Union, China, Iran, Turkey and Arabia. Indian Union is the largest producer of opium. Opium is largely consumed in recent times by Mahommedan countries. The European countries, particularly the United Kingdom, import a fairly big amount of opium for manufacture of medicines. The chief exporting countries are Indian Union and Turkey.

SPICES—Spices are highly valued for their flavouring properties and medicinal uses. Most of the spices such as pepper, ginger, cloves, cinnamon, cardamom, etc., are the products of the tropical regions. Generally speaking, abundant rainfall and high temperature are the favouring climatic conditions for the successful production of almost all of them.

CHILLIES are largely produced in Central America, West Indies and the equatorial regions of Asia, Africa and South America.

PEPPER is the berry or fruit of a climbing plant native to South-eastern Asia. Peppers are chiefly of *two* varieties—(i) black pepper and (ii) white pepper. Black pepper consists of the fruits dried in the sun. White pepper consists of the fruits with the outer skins removed. The principal pepper-producing countries are Indonesia, Thailand, Malaya, French Indo-China and South India.

GINGER is the sun dried underground root of a plant, also a native of South-eastern Asia. It is sold both fresh and sun dried in the world's market. The chief producing countries are the West Indies, Indonesia, India, Pakistan, China, Indo China and British West Africa. The U.K. is the chief importing country.

CLOVES are the dried unopened buds of a small tropical tree. They grow best in Zanzibar and Pemba which contribute more than 70 per cent of the world's total. Other important producing countries are Penang, Indonesia, the West Indies, South India and Mauritius.

CINNAMON is the dried bark of a small evergreen tree. It is chiefly produced in Ceylon, Indonesia, West Indies, South India and Brazil.

CARDAMOMS are the most highly valued of Indian spices. They are largely produced in South India and exported to Europe.

NUTMEGS are the fruits of trees which are grown in West Indies and Indonesia. Besides all these spices, there are many other minor spices such as coriander, vanilla, mustard, etc. Although the tropical region is the home of spices, the temperate region countries also produce a few of them such as mustard, coriander, etc.

FIBRE CROPS

Man's clothings are mainly derived from vegetable fibres such as Cotton, Jute, Flax and Hemp. Vegetable fibres are more or less woolly products possessing elasticity and can be easily spun into threads, yarns or ropes. For all these, they are extensively used for the manufacture of textiles, cordages, upholsters and baskets as well as for paper making. Vegetable fibres may be broadly classified into *two* main groups according to their climatic requirements — (i) the tropical fibres such as cotton and jute and (ii) the temperate fibres such as flax and hemp. But such classification is a mere approximation, for some of them are grown in both the tropical and temperate regions. The vegetable fibres may again be classified into *four* broad groups according to their uses — (i) Textile fibres such as cotton, flax, etc., (ii) Cordage fibres such as jute, hemp, etc., (iii) Paper making fibres such as jute, cotton, China grass etc., (iv) Basket-making fibres such as jute, cotton, cane, etc. But such classification too is

misleading, since some of them are used for several purposes. The textile fibres also can be classified as seed fibres, *e.g.* cotton, and bast fibres *e.g.*, jute, flax and hemp, on the basis of their sources of origin. *Seed fibres* are those that are found in tufts enveloping the seeds and the *bast fibres* are those that are derived from the bark.

COTTON—Cotton is a woolly fibre obtained in tufts attached to the seeds of a shrubby plant. It is the most important of all the vegetable fibres and is extensively used for the manufacture of textile goods. Cotton is also used in the manufacture of gas mantle, paper, cellulose, rayon etc. The seeds yield oil and oil-cake. The oil is used as lubricant and the cake as a food for the cattle and also as a fertiliser.

According to fineness, length, lustre, colour, smoothness and durability cotton can be divided into four classes—(1) *Sea Island Cotton*, (2) *Upland Cotton*, (3) *Egyptian Cotton*, and (4) *Indian Cotton*.

(1) *Sea Island Cotton*.—This is the finest cotton and the fibre is finer, longer (more than $1\frac{1}{4}$ " long), more lustrous and durable than that of other varieties. This type of cotton is abundantly grown in the West Indies and that is why it is called *Sea Island cotton*. It also grows in the U.S.A., Egypt and Sudan. It is used in spinning the best and finest yarns.

(2) *Upland Cotton*.—It is produced in all the cotton producing countries of the world and the length of its fibre ranges between $\frac{3}{8}$ " and $1\frac{1}{8}$ ". It is of medium quality and fineness and is the most widely used of all varieties.

(3) *Egyptian Cotton*.—The fibre of this type of cotton becomes more than $1\frac{1}{8}$ " long. Egyptian cotton is most valuable because it is well adapted to mixing with silk. It is highly lustrous and it dyes well. The U.S.A., Russia, Uganda, Kenya and Tanganyika are noted for the production of this type of cotton.

(4) *Indian Cotton*.—It is of very inferior quality. It is coarse and short-stapled, the length not exceeding $\frac{3}{8}$ ". It is considerably grown in Indian Union and China and is chiefly used in the manufacture of cheap grade goods.

Cotton is essentially a tropical and sub-tropical crop. The cotton plant grows best on rich light, well-drained loamy soils. The soil must be capable of retaining moisture and it is this characteristic which renders the sticky "black soil" so suitable for

cotton cultivation Presence of lime in the soil is beneficial The plant requires plenty of moisture in the growing season until the flowers are formed and then a dry sunny period until the bolls ripen and burst and the cotton can be gathered The cotton plant thrives in regions with moderate rainfall ranging from 15" to 40" inches and moderately high temperature varying from 50° to 70°F Frost or excessive rainfall is very harmful to cotton Sea breezes are ideal for better type of cotton cultivation One important economic factor determining the distribution of cotton cultivation is the plentiful supply of cheap labour for planting hoeing and picking

The relative position of the different cotton producing countries of the world is given in the following table —

WORLD PRODUCTION OF COTTON

(Excluding U S S R) in 1951 = 6 830 000 Metric Tons*

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U S A	48.1	Egypt	5.3
Indian Union	10.0	Brazil	5.1
China	9.5	Pakistan	4.1
		Others	17.9

NORMAL WORLD PRODUCTION OF COTTON

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U S A	44	Egypt	6
India & Pakistan	17	Brazil	5
China	11	Others	8
Russia	9		
		Total	100

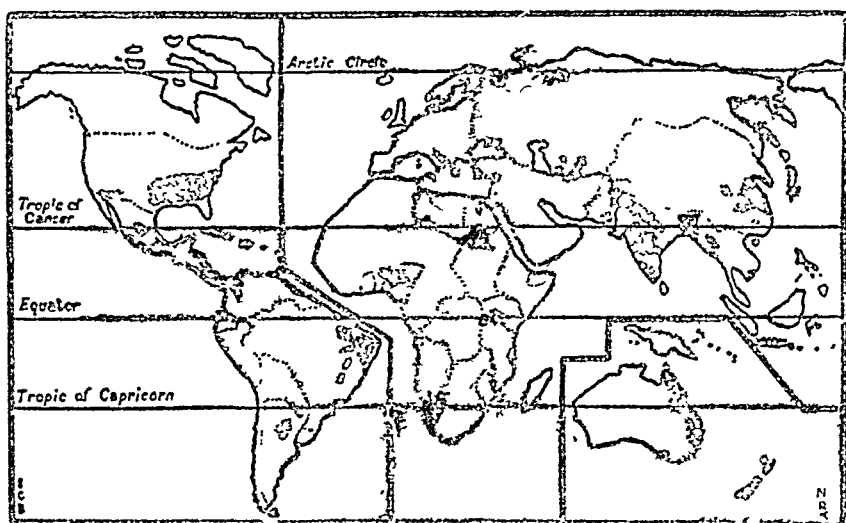
AMERICA—The U S A leads over all other countries of the world in cotton production The important producing regions in the U S A are Texas Mississippi Arkansas, Alabama Georgia Oklahoma North and South Carolina, Louisiana and Tennessee The vast area extending from latitude 37° N on the north to 31° N on the south extending over all these states does not experience snowfall for more than 200 days, nor is there rainfall in excess of 15" to 20" a year Moreover in these regions

* United Nations Statistical Year Book, 1952

severe cold has considerably lessened the troubles arising from insects. Besides the U.S.A., other important American producers are Brazil, Peru, Mexico and North Argentina.

ASIA—India including Pakistan produces large quantities of short-stapled cotton and ranks second in the list of the world's producers. Most of the Indian cotton grows in the black soil region of the Deccan Peninsula. In Pakistan good quality cotton like that of America is at present being produced in Sind and West Punjab from improved quality of seeds with the aid of irrigation. China is the third largest producer of cotton and most of her production is used internally. Other important Asiatic producers are Chosen (Korea), Turkey, Iran and Japan.

EUROPE—Europe, though she consumes large amount of raw cotton, does not produce it sufficiently to meet even her domestic requirements. The U.S.S.R. is the only country of significance so far as her contribution to the world's production is



World Distribution of Cotton (dotted) and Jute (black)

concerned. Besides U.S.S.R., other cotton-producing countries are Spain, Italy, Greece, Bulgaria, Rumania and Yugoslavia.

AFRICA—Egypt is highly important for her qualitative output. In regard to the amount of yield per acre the Nile Valley of Egypt leads over all other countries of the world, and the success here is solely due to the alluvium carried by the Nile and the

irrigation system provided by the river. The Egyptian cotton is so superior in quality that similar cotton is being attempted to be grown in other countries from Egyptian seeds. Other important producers are Anglo Egyptian Sudan, Uganda, Tanganyika, and the Union of South Africa.

The U.S.A. contributes more than 50 per cent. of the world's total exports. Her cotton is exported principally to the U.K., Japan and China. The principal cotton ports are New Orleans and Galveston. India including Pakistan follows the U.S.A. in the export trade of cotton. She exports to Japan, China, the U.K. and Germany. Japan takes over 50 per cent. of her exports. Bombay is the chief cotton port of Indian Union. Other important exporting countries are Egypt, Brazil, Peru, Uganda, Anglo Egyptian Sudan, etc.

Japan leads so far as the import trade of raw cotton is concerned. The U.K. ranks second in the list of the importing countries. Other important importing countries are Germany, France and Italy.

The present position of the countries forming the British Commonwealth of Nations cannot be regarded as self sufficient in regard to cotton although the sum total of their production amounts to nearly one-third of the world's total output in view of the fact that their domestic production falls far short of the internal requirements. The United Kingdom's demand for cotton is mostly supplied by Indian Union, Pakistan, Anglo Egyptian Sudan, and Uganda, but the supply being of inferior quality it is not very much favoured in Lancashire where it is mostly used in the manufacture of inferior textiles for export purposes. Hence, to meet internal requirements the United Kingdom has to rely on supplies of superior quality cotton from America and Egypt.

JUTE—Jute is the most important of all the bast fibres of the world. It is one of the cheapest fibres. It is used for the manufacture of cordages and all sorts of coarse fabrics such as sackings, canvas, tarpaulins and carpets. It is also used for the manufacture of brown paper. Jute can be dyed easily but it cannot be bleached satisfactorily. The fibre is susceptible to the action of water and undergoes rapid deterioration.

Jute is essentially a tropical crop and thrives best in alluvial soil. Jute cultivation requires plain, level land and water-logging is beneficial. High temperature ranging from 80° to

100° F. and heavy rainfall varying between 80" and 100" inches are ideal. Jute is a very exhausting crop and unless the fertility of the soil is renewed gratis by nature, it cannot be profitably grown. The yearly inundations of the lower Brahmaputra and the Gangetic plains in India renew their fertility for which jute can be cultivated cheaply in these regions. Jute cultivation requires an abundant supply of cheap labour, as in cotton cultivation.

UNDIVIDED INDIA—Particularly the provinces of East and West Bengal, Bihar and Assam—grows almost the whole of the world supply of Jute. East Bengal—rather East Pakistan—is the richest region so far as the production of jute is concerned, accounting for as much as 70% of the total production of undivided India; but in spite of this high percentage of production it is a pity that almost all the jute mills are situated in Indian Union. Ceylon, Taiwan, Malaya, French Indo-China, Japan, Anglo-Egyptian Sudan and West Africa are the other important producers.

India including Pakistan is the chief exporting country of jute. Calcutta and Chittagong are the two important ports of Indian Union and Pakistan respectively handling most of the export trade in jute. The chief importing countries are the United Kingdom, Germany, the U.S.A., Canada, Argentina, Australia, Japan, France and Italy.

A COMPARATIVE STUDY OF COTTON AND JUTE

COTTON

1. Mainly a textile fibre.
2. Essentially a seed fibre.
3. Both a tropical and sub-tropical crop.
4. Well-drained, fertile, loamy soil ideal.
5. Moderate rainfall (15" to 40") and moderately high temperature (50° to 70°F) required.
6. Water-logging harmful.
7. Sea-breeze ideal for better crops.
8. Abundant supply of cheap labour essential.

JUTE

1. Mainly a cordage fibre.
2. Essentially a bast fibre.
3. Essentially a tropical crop.
4. Plain, level, alluvial soil ideal.
5. abundant rainfall (80" to 100") and high temperature (80° to 100°F) required.
6. Water-logging beneficial.
7. Sea-breeze not a requirement for better crops.
8. Abundant supply of cheap labour essential.

FLAX—Flax is derived from the bast of plants grown in the temperate regions. After cotton and wool it is the most important textile raw material of the world. The flax fibre is soft, flexible and lustrous and more durable than cotton. The finest quality makes linen, the coarser qualities twines, canvas and tarpaulins. The seeds known as linseeds yield oil which is largely used in the manufacture of paints and varnishes. The cakes after extraction of oil are used as cattle fodder. It is interesting to note that the same plant does not yield both fibre and seed. The flax plant which yields the best fibre is grown in the temperate regions whereas the plant which yields the seeds is a native of the tropical regions.

Flax has a wide range of climatic conditions and grows both in the tropical and temperate regions. For its successful cultivation the soil should be well drained, level and fertile. It is a very exhausting crop and hence is usually grown as a rotation crop. Cool, temperate climate ranging from 35° to 55°F and moderate rainfall varying from 15" to 30" inches are ideal for its growth. The flax cultivation also requires an abundant supply of cheap labour.

The most important flax producing countries are Russia, Poland, the Baltic States, France, Belgium, Holland, Germany, North Italy and Ireland. In India, Argentina and the U.S.A., the plant is grown for seeds.

International trade in flax is not great. The chief exporting countries are the Baltic States, Russia, France and Holland and the importing countries are Belgium, the U.K., Germany and Japan.

HEMP—Like flax, hemp is also a bast fibre. It is principally used for the manufacture of ropes, twines, canvas and tarpaulins. For yielding of fibre it is best grown in the temperate regions. In the tropics it is grown for yielding various narcotics and drugs as well as oil seeds.

When grown as a fibre crop, hemp requires more or less the identical soil and climatic conditions like flax for its successful growth. For best yield the soil would be well drained, fertile and level, and temperature and rainfall as moderate as those for flax.

There are different varieties of hemp, chief of which are manila hemp and sisal hemp. Manila hemp is principally grown

in the Philippine Islands and is chiefly used for the manufacture of ship's ropes and cordages. Sisal hemp is a native of the tropical climatic regions and is chiefly grown in Mexico, Central America, West Indies, East Africa and Madagascar.

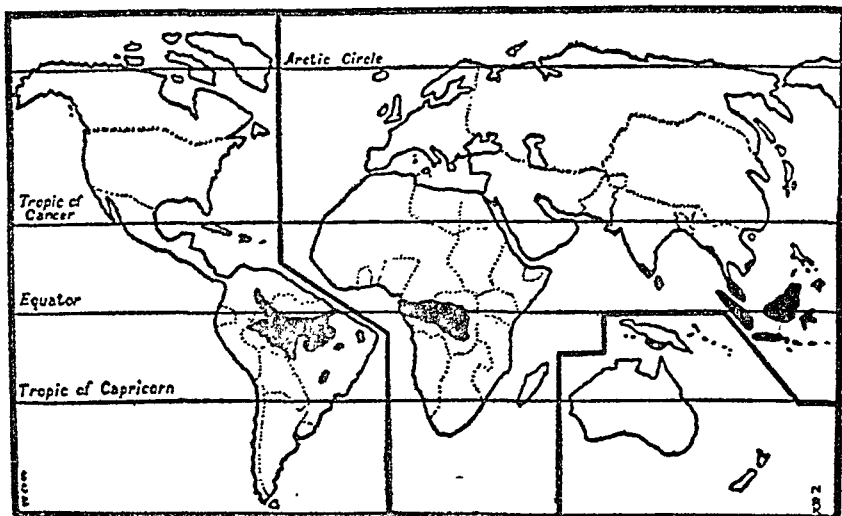
The principal hemp-producing countries are Russia, Italy, Poland, Hungary, Yugoslavia, Rumania, China, Korea and Japan.

Besides these, as fibre, the hemp grown in Madras and Bombay—generally known as *Deccan Hemp*—is also important. It is harder, more lustrous, and more durable than jute and the cordage made of it is more in demand than that made of jute.

Next in importance comes the fibre produced from China-grass and cocoanut. In Central China the fibre from China-grass is used in the making of textiles and various kinds of threads, laces, etc. Cocoanut is a tropical crop and its fibre is used in making ropes and cordage, door mats, mattresses, etc.

OTHER INDUSTRIAL CROPS

RUBBER—Rubber is prepared from the latex (juice) of various wild and cultivated trees of the equatorial regions. To yield rubber of commerce, the latex undergoes the process of vulcanisation in which sulphur is added to it in order to impart the desired consistency of elasticity. Rubber has varied uses. Its extensive use is in the manufacture of automobiles in making



World Distribution of Rubber

of tyres, tubes, etc. It is also widely used in the manufacture of surgical electrical and sporting goods. In the making of waterproofs and ink-erasers which were its early uses, the demand for rubber is also great.

There are mainly two varieties of rubber—wild rubber and plantation rubber. Wild rubber is obtained from trees growing wild in the forests of the tropical and equatorial regions. Plantation rubber is obtained from the cultivated trees. Wild rubber trees grow in the dense forests of the Congo and Amazon basins but these forests are far away from the sea coast and to collect rubber therefrom is extremely difficult and hazardous. Formerly wild rubber supplied the bulk of the world's demand but in recent times plantation rubber contributes more than 90 per cent of the world's total supply. More than 96 per cent of rubber comes from Para and Ceara trees the rest being obtained from other varieties of rubber trees.

Rubber trees thrive best in well drained, fertile loamy soil. The trees require great heat, nearly 100°F throughout the year and an evenly distributed heavy rainfall varying from 100" to 150" inches. One important economic factor which limits their cultivation to densely populated regions is an abundant supply of cheap labour. Rubber trees do not live long without water and, therefore, rain water is equally essential for each tree. It is for this reason that slopes of the hills which obstruct monsoon wind suit better than plains for rubber cultivation since in such slopes rainfall is more profuse and the water can easily be drained out.

The tropics and the equatorial forest regions are the chief sources of supply of rubber. The most important rubber producing countries are Malaya, Indonesia, Ceylon, Indian Union, Indo China, Burma and Thailand in Asia, Brazil Colombia, Venezuela, West Indies and Mexico in America, and the Congo basin in Africa. British Malaya and Indonesia contribute over 80 per cent of the world's supply. In 1951 the total world production of crude natural rubber was 1,910,000 metric tons of which Malaya and Indonesia accounted for 615,100 and 818,100 metric tons respectively. Rubber plantation is now being carried on in North Queensland, Fiji, the Philippines and in some places of Russia.

The relative position of the different countries of the world in the production of rubber in 1951 was as follows —

WORLD PRODUCTION OF RUBBER

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
Indonesia	.. 42·8	Ceylon	.. 5·6
Malaya	... 32·2	Brazil	.. 1·1
Thailand	.. 5·8	Others	.. 12·5

Rubber has an extensive world trade. The chief importing countries are the U.S.A., the U.K., Germany, France, Japan, Russia and Canada. The U.S.A. alone imports more than half of the world's production of rubber. The chief exporting countries are Malaya, Indonesia, Indian Union, Ceylon, Indo-China and Brazil.

SYNTHETIC RUBBER—The steadily increasing demand for rubber has inspired countries like Great Britain, Germany, Russia, U.S.A., Canada and Japan to produce it synthetically. There are numerous methods of preparing synthetic rubber. The American synthetic rubber "Duprene" and German synthetic rubber "Buna" are, for certain specific purposes, superior to natural rubber. The chief source of German synthetic rubber "Buna" is the simple "butadiene" manufactured from calcium carbide as starting point. The production in 1951 was 930,000 metric tons. The relative position of the different countries of the world in the production of synthetic rubber in 1951 was as follows :—

(In thousand Metric tons)

<i>Countries</i>	<i>Production</i>	<i>Countries</i>	<i>Production</i>
U.S.A.	.. 858·7	Germany.	0·9
Canada	... 63·3	Others.	7·1

The starting material of Russian synthetic rubber is alcohol. In 1935 about 25,000 tons were manufactured. The basis of American synthetic rubber "Duprene" and "Nuprene" is acetylene. Another synthetic product "Chemigum", derived from petroleum wastes, is produced in the United States and is claimed to be equal to the natural rubber. In Japan synthetic rubber is produced from soyabeans and Great Britain prepares it from coal. It has been found after research that Iraqi petrol contains certain ingredients from which it is possible to produce rubber.

The production and consumption of natural and synthetic rubber in 1950 and 1951 were as follows :—

(In lakh tons)

	PRODUCTION		CONSUMPTION	
	1950	1951	1950	1951
Natural Rubber	18.8	19.0	17.3	15.6
Synthetic	5.4	9.3	5.9	9.1
Total	24.2	28.3	23.2	24.7

OIL-SEEDS—Oil seeds are the chief sources of all vegetable oils. The vegetable oils have varied uses. Some are used for edible purposes, some for lubrication, some for making soaps and perfumeries, some for lighting purposes, some for varnishes and paints, some for candles and some for medicinal purposes. Oil cakes are also valuable as they are largely used as a cattle-fodder or as a manure.

Oil seeds might be classified into three broad classes—
(i) those yielding solid fats such as copra and mahua seeds,
(ii) those yielding non-drying and semi-drying oils such as olive, cotton seed, castor seed, groundnut, sesamum and soyabean, and
(iii) those yielding drying oils such as linseed.

COPRA—Copra is the dried kernel of the coconut palm. The oil from copra is used for the manufacture of edible oil, margarine, and soaps. The Philippines, Indonesia, Ceylon, Malaya, Southern India, other Pacific Islands and West Africa are the chief sources of supply.

MAHUA SEED—The oil from the mahua seed is used as vegetable ghee and for other edible purposes. India has monopoly of supply.

OLIVE—Olive is a product of the Mediterranean type of climatic regions. The oil is chiefly used for making table oil, soaps and perfumeries. The chief producing countries are France, Italy, Spain, Portugal, Turkey, Greece, North Africa and California.

COTTON SEED—The oil is used for edible purposes and also for making candles. The oil cakes are used as fodder and fertiliser. The chief producing countries are the U.S.A., India, Pakistan, Egypt, China, the Anglo-Egyptian Sudan and Brazil. Great Britain, Denmark, and Belgium are the principal importers.

CASTOR SEED—The oil is used for lubricating as well as soap-making purposes. It is also used for the making of medi-

cines. India is the chief source of supply. China, Brazil and the East Indies are also large producers.

GROUNDNUT—The oil obtained from it is largely used for making cooking oils and soaps. China, India, French West-Africa, U.S.A., and Indonesia are the chief sources of supply. The principal exporters are Indian Union and French West Africa, and the European countries are the chief importers.

SESAMUM—The oil is used for edible and soap-making purposes. It is also used in making perfumeries. Mexico, India, Pakistan and China are the chief sources of supply. Italy, Arabia, Ceylon and Burma are the principal importing countries.

SOYABEANS—Soyabeans have come into great prominence in recent times. They have great food value. The oil, however, is used for edible purposes. It is also used for making soap, candles and varnishes. China, Korea, Manchukuo and Japan are the principal producing countries.

RAPE, MUSTARD—Mustard is divided into *two* classes—white and red. The oil is used in cooking and the oil-cake as cattle fodder. Indian Union, Pakistan and Burma are the principal sources of supply.

LINSEED—Linseed is obtained from the flax plants. The oil is chiefly used in the manufacture of paints and varnishes and the oil-cake as cattle fodder and fertiliser. The oil when treated with sulphur forms what is called linoleum. Linoleum has replaced rubber in many places for its water resisting properties. The chief linseed producing countries are Argentina, Russia, India and the U.S.A.

CHAPTER VI

COMMODITIES.—(Contd)

ANIMAL PRODUCTS

INTRODUCTION—Animal kingdom like agriculture, provides food and clothing to the people and raw materials to the manufacturing industries of a country. Animals are also reared for their valuable services as beasts of burden or transportation agents. The type of animals in a particular region largely depends upon climatic conditions and vegetation life of that region. Animals provide food in the shape of meat, fish and dairy produce. The clothing materials are provided in the shape of wool and silk, and the other industrial raw materials in the shape of hides and skins, bone manures, horns and hoofs etc.

Everywhere great attention is now being paid to stock-rearing and the maintenance and growth of the animal race, since many essential necessities are met from the animal kingdom. Among domestic animals cow, goat, buffalo, sheep and pig are most important and their proper rearing requires adequate pasture lands. With the gradual increase of the commercial value of animal products the importance of the world's grazing grounds is now being thought of from the commercial point of view. The commercial grazing areas of the world lie in the temperate grassland and the tropical savanna regions.

GRAZING AREAS OF THE TEMPERATE ZONE—These comprise the northern and western part of the U.S.A., the prairies of Canada, northern part of Mexico, Argentina, Uruguay, Brazil and Southern Chile in South America, the highlands of the south eastern, and the Mediterranean regions of Western Australia, New Zealand, and the Veld of South Africa.

As grazing ground Western America is considered best. Next in order of importance come the Pampas of Argentina and the wet regions of the Andes Mountain range.

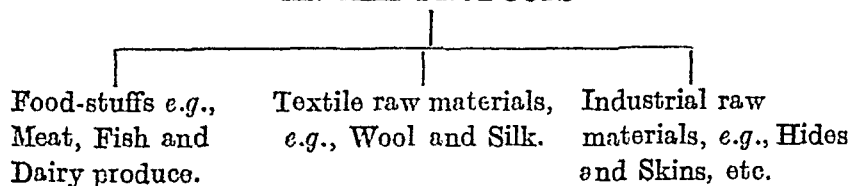
In the eastern hemisphere Australia and New Zealand occupy the leading position so far as stock rearing is concerned. Of these two New Zealand's position is decidedly better and its significant development in stock rearing on a commercial scale is due to

moderate rainfall throughout the year, prolific growth of high quality grass, communication facilities, vast level grasslands, mild climate and the improved method of stock-rearing.

TROPICAL GRAZING AREAS—These include the Savanna and Parkland of Africa ; the “Chako” grasslands of North Argentina, the Campos and Lanos of South America ; and the Savanna of Australia. Excessive rainfall, severe heat and cold, undeveloped transport system, pestilence, etc. have however stood in the way of improvement of these grazing grounds. The Australian Savanna is, however, an exception where for the enterprise of the white settlers, production of animal products by scientific methods, steps taken by the government for the prevention of animal diseases and well-developed transport the stock-rearing on commercial scale has attained a great success.

The products derived from the animal kingdom can be classified in the following manner :—

ANIMAL PRODUCTS



FOOD-STUFFS

MEAT—Meat is an essential food-stuff of the people of the temperate regions. To the people of the tropical regions meat is more a luxury food than a requirement. Of the meats commonly used, beef, mutton, ham and bacon are most important.

BEEF—Beef is obtained from cattle which can be reared in a wide range of climatic conditions. The best beef-cattle, however, are reared in regions with cool, dry, temperate climate. Beef-cattle are hardy and can thrive on poor grasslands. The chief beef-cattle rearing regions are distributed as follows :—

EUROPE—Almost all the countries of Europe rear beef-cattle for meat, but the production of beef is not sufficient to meet their requirements.

AMERICA—The U.S.A., Argentina, Uruguay, Paraguay, Chile and a part of Brazil produce large quantities of beef. Argentina is a great exporter of meat in the world's markets.

AUSTRALIA—Australia is also a large producer of beef

There is a considerable amount of world trade in beef. The principal beef exporting countries are Argentina, Australia, New Zealand and Uruguay. The chief importing countries are the United Kingdom, Germany, Italy and Belgium, the United Kingdom being the biggest importer.

MUTTON—Mutton is obtained from sheep. The sheep reared for mutton purposes require cool, damp, temperate climatic conditions and rich pasturage.

The principal mutton producing countries are New Zealand, Australia, Argentina, Uruguay, U.S.A., and South Africa.

The chief exporting countries are New Zealand, U.S.A., Argentina, Uruguay, Chile, Australia and South Africa. In the export trade New Zealand leads over all other countries exporting nearly 50% of the total output. The chief importers are the United Kingdom, Germany and Italy.

HAM AND BACON—Bacon and ham are obtained from pigs. Pigs can be reared in a wide range of climatic conditions. China, the U.S.A., New Zealand, Argentina, Russia, Germany, Brazil, Poland and Denmark are the chief pig rearing countries of the world.

The U.S.A., Denmark, Holland and Poland are the chief exporting countries. The United Kingdom and Italy are the leading importers. In import and export trade the United Kingdom and U.S.A. respectively lead over other countries.

FISH—Fish is an important article of food of the people. Formerly fishing industry was of local importance, since most of the catches were consumed locally. But due to the improvements in transportation services, cold storage systems, and canning and tinning of fish, fishing has become an important industry of international significance.

Fish are derived principally from two sources—(i) *Fresh water* and (ii) *Sea-water*. Fresh water fish is found in rivers, lakes, ponds and tanks and is mostly used for local consumption, there being very little trade. Sea water fish is important so far as international trade is concerned. Sea water fish live at various depths of the sea.

All the important fishing grounds of the world are located in the *temperate zone*, because temperate seas are more prolific than tropical seas. In the temperate zone the areas where the coastline

cool temperate climate have favoured the development of her fishing industry. Under the influence of the warm Atlantic current the sea here remains ice-free during the whole of the year and this factor also has contributed a great deal towards the development of the fishing industry here. The principal catches are cod, herring, salmon, mackerel, etc. Fish and fish-products comprise more than 25 per cent of Norway's total export value. Trondheim and Bergen are the two important fishing ports of Norway.

(ii) *The North Atlantic coast fisheries of North America :*

—The North Atlantic coast fisheries lie around the coasts of Newfoundland, Canada and the U.S.A., in a broad belt spreading from Labrador to New England. From Greenland flows southward the cold Labrador current by the eastern part of Newfoundland where it joins the warm Gulf stream. The combination of these two streams near Newfoundland has made the shallow off-shore banks an important fishing ground. The principal catches are cod, halibut, haddock, herring, hake and mackerel. The principal fishing ports are St. John, Montreal, Halifax, Nova Scotia, Portland and Boston.

(iii) *The North Pacific coast fisheries of North America :—*

The North Pacific coast fisheries extend from the Gulf of Alaska to the Californian coast. The principal catches are salmon, halibut, cod and herring. The North American Pacific coast is particularly famous for its salmon fisheries. The principal fishing ports are Sitka, Prince Rupert, Victoria and Seattle.

(iv) *The Pacific coast fisheries of Japan :—*The Japanese coast is one of the major fishing grounds of the world. From the Okhotsk Sea and the Bering Strait flow the cold Arctic current and join the warm Kuroshio current flowing near the east coast, making the eastern coast area of Japan a favourable spawning ground. Hokkaido, Korea, Kurile Islands and Sakhalin are the principal fishing centres of Japan. Japan is the leading producer and consumer of fish in the world. In the absence of farmyard manure, fish manure is largely used in the agricultural industry of Japan. The principal catches are sardines, yellowtail, bonitos, herrings, cods, salmon and tunny fish.

(v) *The Mediterranean coast fisheries :—*The Mediterranean coast fisheries yield sardines, sprats and anchovies principally. The countries interested in the Mediterranean fisheries are

France, Spain, Portugal and Italy Bordeaux is the chief canning and exporting centre of sardines and anchovies

Most of the fish caught is consumed locally and there is a little international trade in fish Norway is the principal exporter followed by Newfoundland and Canada The countries of Southern Europe are the principal importers The U.S.A. exports canned salmon and France canned sardines to the United Kingdom

Fishing industry is also important in many other regions The temperate sea coasts of Australia New Zealand and the Union of South Africa have important fishing industries In the tropics fishing is not so important Only in the coasts of Indonesia and Northern Australia some amount of commercial fishing is practised With the improvement of techniques of curing and preserving fish the tropical seas hold great promises of future development

DAIRY PRODUCE—Milk is the basis of all dairy products, such as butter, cheese, condensed milk, powdered milk and fresh milk Milk is obtained from various animals like cow, buffalo, goat, sheep, ass, reindeer etc., but that of the cow and sheep is important Dairy industry depends solely on climate Cool moist climate is ideal for its successful development and is responsible for restricting the industry to the sea coast region of the temperate zone Nearness to the market is an important economic factor in determining its development on a commercial scale, as dairy products cannot be carried over long distances without deterioration of their quality Recent improvements in refrigeration method have greatly extended the markets for dairy products.

The chief areas of production are Denmark, Holland, Switzerland, British Isles, France, Sweden, Belgium, Germany, Northern Italy and the Baltic states in Europe, the U.S.A., and Canada in North America, Argentina in South America, south-eastern coastal regions of Australia, and New Zealand

In spite of the fact the number of livestock of India including Pakistan leads over that of any other single country of the world her position in regard to the production of milk is insignificant

International trade in dairy products is somewhat small Denmark, Holland, New Zealand, Canada and Australia are the

chief exporting countries. The chief importers are the United Kingdom, Germany, Belgium and the U.S.A.

TEXTILE RAW MATERIALS

WOOL—Wool is the most widely used animal fibre and ranks next to cotton as a textile raw material. It is obtained from animals like the sheep, the goat, the alpaca, the camel and the vicuna. The animal that furnishes the largest proportion of wool is the sheep. Wool is extensively used in the manufacture of clothings, shawls, carpets, blankets and rags.

Sheep yielding the best wool require a dry temperate climate and limestone soil. They thrive upon poorer and drier pasture than cattle.

Sheep wool can generally be classified into *three* groups :—

(1) Merino sheep wool, (2) mixed sheep wool and (3) carpet wool. Their percentage of production in the world's total output is 40, 35 and 25 respectively. Of these varieties in respect of fineness, lustre and smoothness the merino-sheep wool is the best. Although the original home of the merino sheep is Spain and North Africa, it is now reared also in South America, South Africa, Australia, New Zealand, etc; but the rearing of this kind of sheep is not extensively practised owing to the fact that the meat yielded by such sheep is of inferior quality. The wool of mixed-blood sheep due to the cross-breeding of meat-yielding and wool-yielding sheep is long but coarse. Yet the rearing of this class of sheep is gradually gaining more and more importance because both meat and wool is obtainable from the same sheep and as such it is a more profitable business from commercial point of view than rearing any other class of sheep. Now-a-days wool produced from British-cum-Merino sheep is greatly used in the world market. The principal sources of supply of mixed wool are the United Kingdom, South America, Australia and New Zealand.

Besides these two varieties Asia, northern part of Africa and southern part of Russia produce another variety of very thick and coarse wool which is mainly used in making carpet, from which the name carpet wool is derived.

Based on the normal production, the relative position of the important wool-producing countries of the world is given in the following table :—

WORLD PRODUCTION OF WOOL

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
		<i>Union of South</i>	
Australia	27	Africa	7
U.S.A.	12	Russia	4
Argentina	10	U.K.	3
New Zealand	8	Others	29

The total world production of wool excluding that of U.S.A. in 1951-52 was 1 630 000 metric tons. The relative position of the different countries of the world in the production of wool in 1951-52 was as follows —

(In Metric tons)

<i>Countries</i>	<i>Production</i>	<i>Countries</i>	<i>Production</i>
Australia	476 000	Union of South Africa	112 000
Argentina	191,000	Uruguay	82,000
New Zealand	185,000	United Kingdom	40,000
U.S.A.	117,000	Others	427,000
			<hr/>
			Total 1 630,000*

Brazil, Uruguay, Chile, Canada, Spain, Turkey, France, Italy, Germany, Czechoslovakia, China, Pakistan and India are the other important producers of wool.

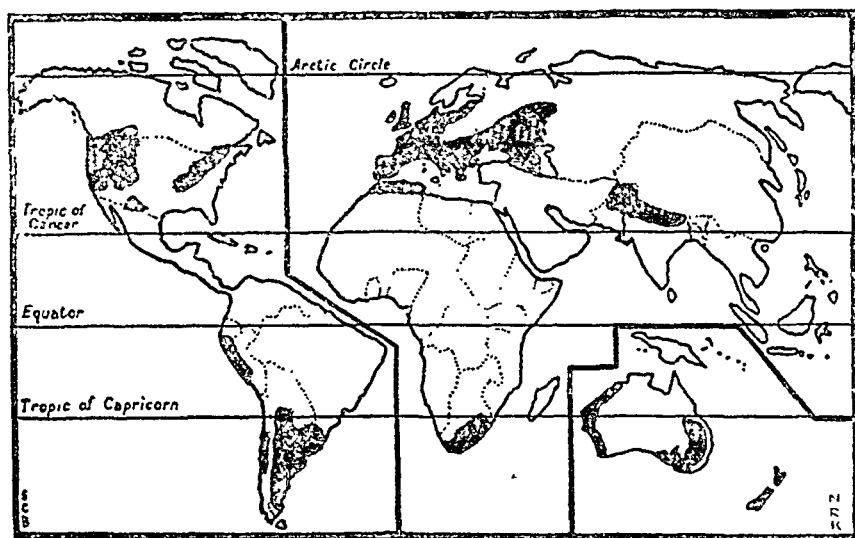
There is an extensive world trade in wool. Wool is chiefly exported by Australia (37%), Argentina (13%), New Zealand (12%), South Africa (11%), Brazil (5%) and Uruguay (4%). Australia easily leads in the export trade of wool and Sydney is the principal market and wool-exporting port of Australia. The chief importing countries are the U.K., Germany, France, Japan and the U.S.A. Export trade in Indian and Chinese wool is very small because of its inferior quality.

Of other animals yielding good quality wool, the Kashmiri goat, the vicuña, the alpaca, the llama and the camel require special mention in this connection.

The wool produced from the Angora and the Kashmiri goat is very fine, lustrous and soft and is used in making fine shawls, wrappers, etc. Angora goat is reared in Turkey and South Africa,

* United Nations' Statistical Year Book, 1952

and the Kashmere goat in Kashmere, Tibet, and the Southern part of China.



World Distribution of Wool

Vicuna, yielding very fine and soft wool, is reared in the high-lands of Peru and Bolivia.

SILK—Silk is an important textile fibre of animal origin and is obtained from silk worms. Silk is lighter in weight, finer and more lustrous than any other textile raw material of the world. It is largely used in the making of elegant dresses. Recently it has come to be widely used in the manufacture of parachutes.

The silk-worms feed on mulberry tree leaves. Consequently the production of silk greatly depends on the cultivation of mulberry trees. The climatic range of the mulberry tree is wide, as it can be grown in both the tropical and sub-tropical regions. Warm and humid climate with an average temperature of 60°F . is ideal for rearing of silk-worms. But the successful production of silk is dependent also on some other factors, one of which is an abundant supply of cheap skilled labour. Production is thus confined to all those countries where the climate is congenial and labour is cheap. The best time for the rearing of silk worm is the period when new foliage shoots out to replace the old and worn out leaves of mulberry trees.

The chief silk producing countries are China, Japan, India, Pakistan, French Indo-China, Korea, Iran, Syria, and Turkey in Asia, and Italy, France, Greece, Bulgaria and Russia in Europe. China is the largest producer of raw silk in the world, but her consumption is also very great. China produces raw silk amounting to $2\frac{1}{2}$ times more than the total output of other producing countries of the world. The important producing areas are the Shantung province and Yang tse kiang basin. Though Japan is the second largest producer she is the leading exporter of raw silk to the world's market. Italy third in order of world production is the leading producer in Europe, contributing approximately 90% of Europe's total output. The principal producing area in Italy is the Po Valley and the high production has contributed to the satisfactory development of the silk industry in the Lombardy plain.

More than half of the world's total output enters into international trade. The principal exporters are Japan, China, Italy and Turkey. China contributes 18% of the world's total export. Before the World War II Japan was the largest silk exporting country. The chief importing countries are U.S.A., France, Great Britain, Germany and Switzerland.

ARTIFICIAL SILK—Artificial silk or rayon is a manufactured chemical product prepared from some form of cellulose, chiefly from cotton waste or saw dust or wood pulp. The manufacture of artificial silk consists in transforming by various chemical processes wood cellulose or cotton wastes into extremely fine filaments the artificial silk yarns. The industry is highly technical and has developed in countries where the chemical industry is well developed.

The production of artificial silk has made rapid progress in recent years. In 1913 the world production was something like 15 000 tons but now it is over 900 000 tons. The total output of artificial silk now a-days far exceeds the total output of natural silk. The extraordinary development of artificial silk manufacturing industry has created an uncertainty as to the future of the natural silk industry, since the artificial silk is finer and more lustrous but much cheaper than natural silk. In spite of the fact that natural silk is lighter and more elastic, the demand for rayon is gaining ground rapidly because it can easily be used in the manufacture of mixed textile goods, and as in appearance and

durability it is equal to natural silk, it is more in demand with the consumers generally.

Silk industry in the highly industrialised and rich western countries has not been affected in the least by the advent of *rayon* in the industrial field because of the fact that it can be mixed with other textile fibres and used as a substitute to cotton or wool. But in poorer countries where industries have not developed properly the cheapness and easy availability of *rayon* has created a bottleneck in the natural silk industry, and this is apparent in the silk industry of Indian Union due to heavy importation of *rayon* from Japan. It can, however, safely be said that the keen competition between *rayon* and natural silk will not affect the demand of natural silk of the western countries even in remote future although there may exist severe cut-throat competition between natural and artificial silk in industrially backward countries.

The relative position of the important *rayon*-producing countries of the world in 1951 is given in the following table :—

WORLD PRODUCTION OF ARTIFICIAL SILK

=833,700 Metric Tons

<i>Countries</i>	<i>Production</i>	<i>Countries</i>	<i>Production</i>
Germany ..	184,000	Italy ..	65,560
U.S.A. ..	152,400	France ..	49,620
Japan ..	104,700	Belgium ..	16,880
U. K. ..	75,840	Others ..	184,700
<hr/>			
Total ..			833,700

The other important producing countries are Belgium, Canada, Switzerland, Norway, Sweden, Austria, Spain. Czechoslovakia, Poland, Argentina, Rumania, etc. Normally Germany is the second largest producer of *rayon*, followed by U.S.A., Japan, United Kingdom, Italy, and France.

INDUSTRIAL RAW MATERIALS

HIDES AND SKINS—Hides and skins are obtained chiefly from cattle, sheep, horses and goats. They are extensively used in the manufacture of boots and shoes, saddleries, suitcases, bags and gloves.

Hides and skins are produced in countries where cattle, sheep and such other animals are reared. India and Pakistan, Australia, New Zealand, Argentina, South Africa, Denmark, Holland, Brazil and Uruguay are the chief producers of hides and skins. They are also the chief exporters. The U.S.A., Germany and Great Britain are the chief importers.

The animal kingdom also provides various minor products, such as horns, hoofs, bones, furs, feathers, animal fats, etc. Bones, horns and hoofs are largely used for making buttons, combs, agricultural manures, etc., furs and feathers for making ornamental dresses, and animal fats for edible and other industrial purposes.

CHAPTER VII

COMMODITIES—(*Contd.*)

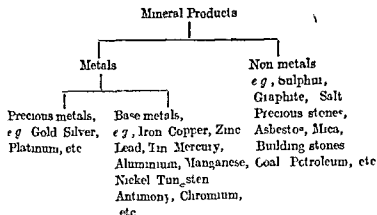
MINERAL PRODUCTS

INTRODUCTION—Mineral products mainly occur in rocks underneath the earth's surface. They are usually extracted in form of chemical compounds from the wombs of the earth. Minerals are not so essential as food and clothing for man's very existence, but they have various uses, and in modern times have come to be regarded as the very basis of economic and industrial prosperity of a country.

The production of minerals differs greatly from that of agricultural and animal products. While the production and resources of agricultural and animal products are mainly dependent on human effort, the production of minerals is wholly controlled by nature. Agricultural crops can be grown and animals can be reared in the same locality year after year; but the quantity of minerals is fixed and unalterable, and once they are taken out from the earth, they cannot be replaced. Besides, the distribution of minerals and consequently their production do not obey the laws of climate. The inhospitable climate of the Yukon territory in Alaska or the hot desert climate of Western Australia are not deterrent to the exploitation of gold resources of those regions.

Minerals exercise a great influence on human settlement. The existence of mineral resources has, in all ages, attracted mankind to settle even in inhospitable climatic conditions. This attraction for mineral resources has induced man to inhabit and turn the sparsely populated mineral regions into densely populated areas. The gold mining areas of South Africa, the coal regions of Germany, the U.S.A., and of the northern and central parts of Great Britain and Tatanagar in India furnish the best examples of this.

Minerals are many but they can be conveniently classified in the following manner :—



PRECIOUS METALS

GOLD—Gold is one of the precious metals and is highly valued for its rarity and bright metallic lustre. It is chiefly derived from two sources—(i) the alluvial or placer deposits and (ii) reef or lode deposits. Placer gold occurs in the beds of rivers running through gold bearing regions and is easy to obtain. But to obtain gold from reef or lode deposits considerable capital outlay on plant is necessary. Gold is chiefly used for coinage and currency. It is also used in the making of jewellery and other ornamental works. It has medicinal and other industrial uses.

The Union of South Africa, South America, Australia and Russia are the principal gold producing countries. The relative share of the various gold producing countries in the normal world output is given in the following table —

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
South Africa	35.0	Japan	5.0
Canada	13.0	Australia	4.5
U.S.A.	12.5	India	0.8
Russia	11.5	Others	17.7

Total .. 100.0

The relative position of the important gold-producing countries of the world in 1951 is given in the following table —

TOTAL PRODUCTION OF GOLD=733,000 Kil. the best of the
 (Excluding U.S.S.R. & China) iron while
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 cal

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
South Africa	... 49.0	Australia	... 3.7
Canada	... 18.5	India	... 0.9
U.S.A.	... 8.0	Others	... 29.9

The Union of South Africa contributes more than 50% of the world's total production of gold. In North America rich deposit of gold exists in the region from Alaska to Mexico. North America contributes more than one-fourth of the world's total output. Based on normal production, U.S.S.R. occupies the fourth largest position contributing over 10 per cent of the world's total. Other important gold-producing countries are the Philippines, Mexico, Colombia, Gold Coast, New Guinea, Chile, and Congo. The British Commonwealth of Nations produces nearly 60 per cent of the world's total and most of the British imports of gold come from within the British Commonwealth. The position of European countries in respect of gold production is not, however, very satisfactory, there being very little production outside Russia.

SILVER—Silver is found associated with lead and copper ores so that nearly 80 per cent of the world's output come from the desilverization of these ores. It is also found in a native state. Silver is used in jewellery, table utensils and electroplating. It is also used for coinage and currency purposes.

WORLD PRODUCTION OF SILVER IN 1951=5,400

Metric Tons
 (Excluding U.S.S.R.)

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
Mexico	... 25.2	Peru	... 8.6
U.S.A.	... 23.0	Australia	... 6.2
Canada	... 14.0	Others	... 23.0

The chief silver-producing countries are distributed as follows :—

AMERICA—More than 76 per cent of the world's production of silver comes from America. Mexico is the leading pro-

ducer, producing nearly 40 per cent of the world's total. The U.S.A. is the second largest producer and Canada is the third. Nearly all the states of South America produce silver but the production of Peru and Bolivia is very important. Central America also produces silver.

EUROPE—Germany, France, Russia, Spain, Sweden, Italy, Rumania and Czechoslovakia are the important producers of silver in Europe.

ASIA—Japan and Burma are the two important producers. Other minor producers are China, Korea, the Philippines, Indonesia and Formosa.

AUSTRALIA is an important world producer, and the Belgian Congo is the chief producer in Africa.

PLATINUM—Platinum is a very rare metal and is much more valuable than gold. The chief sources of supply are alluvial deposits. Platinum is used chiefly in various types of chemical and electrical apparatus and jewellery manufacture. It is also used in photography, X-ray work and dentistry.

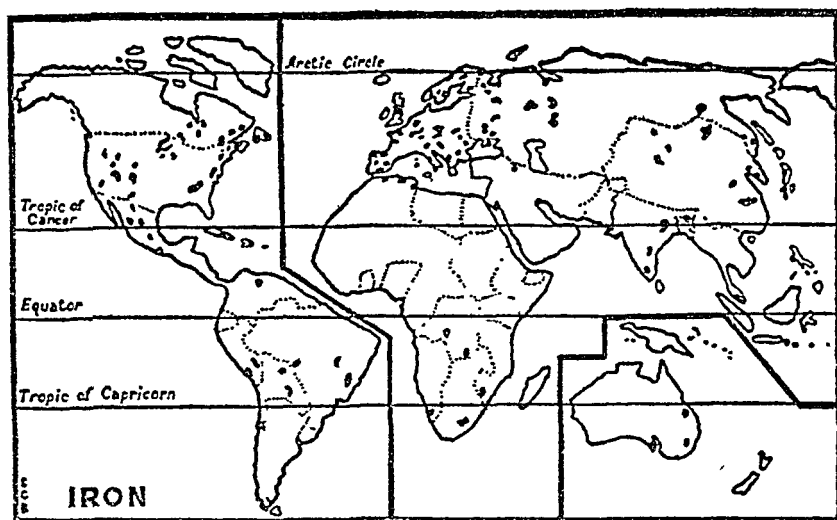
Canada produces more than one third of the world's total output from the local mountain districts. Russia ranks as a close second. The U.S.A., Colombia and the Union of South Africa contribute practically the whole of the remainder. The Union of South Africa, Colombia, Canada and Russia contribute 90% of the world's total production.

BASE METALS

IRON—Iron is the most widely used of all the metallic minerals. Its uses are so numerous and widespread that the iron resources are supposed to determine the industrial development of a country. In the manufacture of machinery, railway plants, ships, building structures and so forth, iron is indispensable. Iron is not found in the pure state in nature. Iron ores obtained from mines are the chief sources of its supply. But the ores vary greatly in their iron contents and chemical composition. The most commonly used ores for the extraction of iron are haematite, magnetite, limonite, iron pyrites and iron carbonates. The iron content of an ore depends on the quality, nature and condition of the ore itself. Haematite is red and contains about 70% iron in it. Magnetite is black in colour and the iron content in it is

in the region of 72%. Indeed it is regarded as the best of the iron ores. *Limonite* is brown with approximately 60% iron while *Iron carbonate* or *Siderite* is generally grey in colour having about 48% iron present in it. The ores are smelted by heat and chemical action, whereby pig iron or cast iron is produced. Pig iron contains various impurities like carbon, sulphur and phosphorus. When all the impurities are burnt out, wrought iron is produced. Wrought iron is converted into steel by addition of a small proportion of carbon. Steel is tenacious, flexible and very hard.

Iron ores are very wide-spread and are distributed as follows:—



World distribution of Iron ores

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AMERICA—The U.S.A. is the leading producer of iron ores in the world. She contributes more than 30 per cent of the world output. Minnesota, Michigan and Alabama are the principal iron-producing areas in the U.S.A. Brazil has large undeveloped reserves of good quality iron ores. Other important American producers are Mexico, Chile and Canada.

EUROPE—France easily leads among the European producers and ranks third in the list of the world producers. Russia in recent years has become an important producer of both iron ores as well as iron and steel. Russia's iron mines are localised in Tula district in the middle of the Donetz valley, but

recent investigations have discovered quite a good number of iron mines in the central and southern parts of the Ural mountains, Khuzbuz, in the neighbourhood of Kursk and in Krivoi Rog in Ukraine. Though Germany, the United Kingdom and Belgium are large producers of iron ores, they have to import large quantities to feed their highly developed iron and steel industry. The iron mines of Great Britain are located in Yorkshire, Lincolnshire, Northamptonshire, Cumberland and North Lancashire. France has her iron mines in Lorraine, Normandy, Brittany and the Pyrennean mountain districts while Germany has abundant resources of iron ores in Siegerland, the Pienne, Salzgitter and Völgelsberg. The iron mines of Spain are distributed over Santander, Bilbao and Almeria. Scandinavia (Sweden), Spain and Luxemburg produce large amount of ores but most of their output is exported to meet the requirements of the European market. In Europe, Sweden can boast of the largest deposit of high grade iron ores. Other producers are Italy, Czechoslovakia, Poland, Austria, Switzerland and Yugoslavia.

ASIA—Indian Union is perhaps the third largest producer of iron ores in the world producing about 2% of the world's total output. Of the iron mines those located in Singhbhum, Keonjhar, Bonai and Mayurbhanj are the most important. Besides these Madhya Pradesh, Madras, Mysore etc. have some iron mines. China, Japan, Malaya, Korea, Manchukuo and the Philippine Islands are the other important producers of iron ores in Asia.

AFRICA—Among the African producers, the countries of North Africa like Algeria, Morocco and Tunisia are important. The Union of South Africa is also having an increasing production.

AUSTRALIA—Australia is not a very important producer of iron ores. Her principal iron mines are located chiefly in the south.

Production of iron ores is not always associated with the development of iron and steel industry, as it will be evident from the following table —

In 1951 the total world productions of iron ores and iron and steel (excluding China, Russia and Manchukuo) were 110,600,000 and 178,000,000 metric Tons respectively.

(In Thousand Metric Tons) .

<i>Country</i>	<i>Iron ores</i>	<i>Per cent</i>	<i>Iron & steel</i>	<i>Per cent</i>
U. S. A.	59,386	53·7	95,376	53·6
United Kingdom	4,465	4·0	15,889	8·9
Germany	3,474	3·1	13,506	7·6
France	11,450	10·3	9,832	5·5
Japan	474	0·4	6,502	3·7
Canada	2,363	2·1	3,236	1·8
Indian Union	2,373	2·2	1,524	0·9
Sweden	9,400	8·5	1,504	0·8
Others	17,215	15·7	30,631	17·2
<hr/>				
*Total—...	100,600	100·0	178,000	100·0

The U.S.A. is the largest producer of iron and steel in the world, while Western Europe ranks second in the list.

Although France is the third largest producer of iron ores, her position in the list of iron and steel producing countries is not so important. On the other hand, Japan, an insignificant producer of ores, ranks as the sixth largest producer of iron and steel in the world.

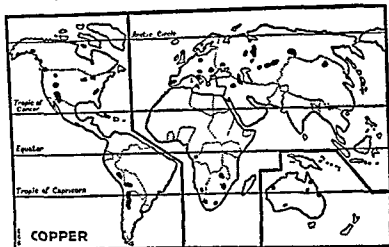
Location, *i.e.*, proximity to or remoteness from industrial centres, plays an important part on the importance of iron mines. This is evident from the fact that although the world's largest iron mine lies in Brazil it has lost its economic importance due to its distance from the industrial centre. On the other hand, proximity to industrial centres has led to the economic development of the iron mines of Great Britain.

There is an extensive world trade in iron ores as well as in iron and steel products. France, Sweden, Luxemburg, Spain, North Africa, British Malaya, China, Manchukuo, Korea, the Philippines, Brazil and Chile are the principal exporters of iron ores. The United Kingdom, Germany, Belgium, Japan and the U.S.A. are the world's chief importers of ores.

India, Pakistan, China, Japan, Canada and South American countries are the principal iron and steel importing countries. On the other hand, the U. K., Germany, Belgium, the U.S.A. and France are the chief exporters.

* United Nations' Statistical Year Book, 1952.

COPPER—Copper ranks next to iron in importance for its varied industrial uses. Unlike iron, it occurs in the pure state in nature, but the principal source of supply is copper pyrites.



World distribution of Copper

It is generally found mixed with silver, gold, iron, lead and sulphur. Copper is a very good conductor of heat and electricity, for which it is extensively used in the manufacture of electrical goods, wireless apparatuses, telegraphic and telephonic wires, refrigerators, etc. In making of ornaments, printing blocks, brewing and distilling machines, etc., too, its demand is great. It is also used in the making of paints, dyeing materials and insecticides. Besides, copper yields valuable alloys. Mixed with tin it produces bronze, with zinc it forms brass and with nickel it forms German Silver.

The U.S.A. is the largest producer, producing as much as 30 per cent of the world's total output of copper. Chile is the second largest producer. Other important producers in order of importance are Canada, Belgian Congo, Rhodesia, Japan and Russia. Peru, Mexico and Cuba in America, Spain, Yugoslavia, Germany and Norway in Europe, and China, Turkey, Indian Union and Burma in Asia, also produce copper.

In 1951 the total world production of copper (excluding U.S.S.R.) was 2,370,000 metric tons of which U.S.A. and

Chile accounted for 842,400 and 379,700 metric tons respectively. Based on normal production the relative position of the different countries of the world in the production of copper is as follows :—

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U.S.A.	... 25	Belgian Congo	... 7
Chile	... 17	Russia	... 4
Canada	... 12	Japan	... 3
Rhodesia	... 11	Others	... 21
<hr/>			
			Total ... 100

ZINC—Zinc is obtained from its principal ores—zinc spar and zinc blende. It is chiefly used to galvanize iron in order to prevent rusting. It is also used in electrical industry in making dry batteries. Other uses of zinc lie in the manufacture of paints, printing blocks, brass and medicines.

The U.S.A. leads in zinc-production, producing more than 25 per cent of the world's total. Other world producers in order of importance are Australia (8·4%), Canada (13·5%), Mexico (8·0%), and Italy (4·5%). Belgium, Germany, Poland, Spain, U.S.S.R., Yugoslavia and Scandinavia in Europe; Peru in South America; Belgian Congo in Africa; and Indian Union, Burma and Japan in Asia are also producers of zinc.

LEAD—Lead is obtained almost entirely from its chief ore—galena. Lead has a variety of uses. It is chiefly used in the manufacture of gas and water pipes, cable coverings, printing materials, typewriters, armaments, automobiles, aeroplanes and storage batteries. It is also used in the manufacture of paints. In glass-making, earthenware-glazing and soldering too, the demand for lead is great.

The principal lead producing countries in order of importance are the U.S.A., Mexico, Australia and Canada. Though the U.S.A. is the largest producer, producing over 25 per cent of the world's total production, yet owing to very great domestic requirements she has to import considerable quantities of lead from Mexico, Canada, Spain and Australia. Other producers are Peru, Bolivia, Yugoslavia, Germany, Russia, Italy, Spain, Sweden, the United Kingdom, Japan and Burma.

TIN—Tin is derived from two sources—(i) alluvial deposits and (ii) lode deposits. Tin obtained from alluvial deposits is called *stream tin*, and that obtained from lodes or veins is called *mine tin*. The principal ore from which mine tin is obtained is cassiterite. Like zinc, tin is chiefly used in coating iron sheets as a protection against rusting. The iron sheets are covered with a very thin coating of tin to produce tin plates which are largely used in manufacturing tin containers, roofings and packing cases. It is also used in making bronze and gilding materials.

The principal tin producing countries in order of importance are British Malaya, Indonesia and Bolivia. They jointly produce nearly 70 per cent of the world's total output of tin. Other tin producing countries are Nigeria, Australia, Siam, Burma, Union of South Africa, China, Peru, Belgian Congo and the United Kingdom (Cornwall and Devonshire). The U.S.A. is the largest consumer of tin and imports all her requirements from other countries. The United Kingdom, Holland and Germany are the other importers.

MERCURY—Mercury or quicksilver is the only metal which remains liquid at ordinary temperature. The chief ore from which it is obtained is cinnabar, i.e. mercuric sulphide. It is chiefly used in the extraction of gold and silver from their ores. It is also used in the manufacture of scientific instruments and valuable medicines. It is combined with tin for silvering mirrors.

The chief quicksilver producing countries in order of importance are Spain, Italy and the U.S.A. It is also produced in Yugoslavia, Russia, Czechoslovakia, Peru, Mexico, Chile, Canada, Japan and China.

ALUMINIUM—No other metal has acquired so much importance in recent years as aluminium. The two principal ores from which aluminium is extracted are bauxite and cryolite. Bauxite is widely distributed but cryolite is found only in Greenland. Aluminium is mostly obtained from bauxite. In its extraction from bauxite, cryolite acts as a catalytic agent in the process. The very high temperature required in the production of aluminium necessitates cheap hydro-electric power. Aluminium is a strong, light, malleable and non-corrosive metal. It

is also a good conductor of heat and electricity. Because of its special characteristics, aluminium is put to many uses. It is chiefly used in the manufacture of aircrafts, automobiles, bicycles and ships. It is also used in the manufacture of household furniture, kitchen utensils, scientific instruments, railway carriages, electrical and armament industries. In the manufacture of paints and fireworks too, its demand is also great.

In case of aluminium, countries which hold significant positions in world production of aluminium ores, are not necessarily always the leading producers of aluminium as will be evident from the following tables. The very high temperature conditions needed for its production localise the smelting of aluminium ores in those countries where cheap hydro-electric power is available. The following tables are self-explanatory :—

NORMAL PRODUCTION OF ALUMINIUM ORES

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
France	... 27	Italy	... 9
Guianas (Dutch and British)	... 20	Yugoslavia	... 9
U.S.A.	... 13	Russia	... 5
Hungary	... 12	Indonesia	... 4
		Others	... 1
<hr/>			
			Total ... 100

NORMAL WORLD PRODUCTION OF ALUMINIUM

<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U.S.A.	... 29	Norway	... 7
Germany	... 22	Russia	... 7
Canada	... 11	United Kingdom	... 5
France	... 8	Others	... 11
<hr/>			
			Total ... 100

The principal aluminium-producing countries in order of importance are the U.S.A., Germany, Canada, France, Russia and Norway. Other important producers are the United Kingdom, Switzerland and Italy. Recently Indian Union has come to produce aluminium.

MANGANESE—Manganese is derived from its ores. It is chiefly used in iron and steel industry for hardening steel. Other uses of manganese are in the manufacture of bleaching powder, electric batteries, glass and various alloys. It is also used in the manufacture of disinfectants and chemicals.

The leading producers of manganese ores are Russia, Indian Union, Gold Coast, the Union of South Africa, Egypt, Morocco, Cuba, Czechoslovakia, Germany, Japan, Brazil, Mexico and the U.S.A. Russia is the largest producer producing nearly 60 per cent of the total world output. Indian Union is the second largest producer. Madras, Bombay, Madhya Pradesh, Bihar, Orissa and Mysore are the chief sources of manganese in Indian Union. The chief customers of manganese are the principal iron and steel producing countries of the world such as the U.S.A., Germany, France, Belgium and the United Kingdom.

NICKEL—Nickel is largely used in the manufacture of hard and tenacious structural steel. It is also used in the manufacture of automobile parts, utensils and armaments. As it is highly resistant to ordinary atmospheric influences, its use in the plating of other metals is also great. It is also used for coinage.

Canada produces bulk of the output producing nearly 90 per cent of the total world output. New Caledonian Island in the Pacific Ocean produces nearly the whole of the remainder. Besides these, Finland, Norway, Union of South Africa, Russia and Brazil also produce nickel. Canada, Norway and New Caledonia are the principal exporters of nickel while the important consumers are the U.S.A., Germany, France, Great Britain, Russia, Belgium and Japan. The U.S.A. alone imports nearly half of the world's total output of nickel.

TUNGSTEN—Tungsten or Wolfram is highly valued for its use in the production of the high speed steel. The principal producers are China, Korea, Burma, British Malaya, Bolivia, Brazil, the U.S.A., Argentina, Australia, Indo China, Siam, Peru and the Iberian Peninsula. China produces the bulk of the world's total output. The chief consumers are the U.S.A., Germany, the United Kingdom, Belgium, France and Japan. The chief exporting countries are China, Malaya, and Bolivia.

ANTIMONY—Antimony is chiefly used in hardening other metals. In the manufacture of battery cells, paints and dyes too, its demand is also great.

China produces over 50 per cent of the world's total output. Other important producers are Mexico, Bolivia, Peru, Yugoslavia, Czechoslovakia, Turkey, Morocco and Union of South Africa.

CHROMIUM—Chromium is chiefly used in the manufacture of stainless and rust-proof steel. It is also used in the manufacture of medicine, paints and dyes. In leather industry, compounds of chromium are largely used as tanning materials.

The principal chromium-producing countries are Rhodesia, Russia, Union of South Africa, Yugoslavia, Indian Union, Pakistan, Greece and Turkey. Turkey leads over others in the production of chromium. The entire output of India was formerly exported to the U.S.A., Norway, Sweden, the United Kingdom and Germany, but is now consumed internally.

NON-METALS

SULPHUR—Sulphur is found in the native state in volcanic regions. The chief uses of sulphur are in the manufacture of sulphuric acid, gunpowder, disinfectants and medicines and also in the vulcanisation of rubber.

The principal sulphur-producing countries are Sicily (Italy), U.S.A., Japan, Spain, Portugal, Norway, Germany, China and Mexico. The U.S.A. produces over 90% of the world's total output.

GRAPHITE—Graphite or plumbago or black lead has a wide demand in the manufacture of lead pencils. It is also used in making crucibles, lubricants and type metal. It is a decomposed form of carbon found native in nature.

The chief producing countries are Germany, Austria, Italy and Czechoslovakia in Europe; Korea, Japan and Ceylon in Asia; Mexico, the U.S.A., and Canada in America; and Madagascar in Africa. Germany is the leading producer with nearly one-third of the world's total output to her credit. Korea ranks second in the list. Indian Union produces but very little quantity of graphite. Artificial graphite is now-a-days being produced by chemical processes in industrially developed countries such as the U.S.A., and the United Kingdom.

SALT—Salt is one of the essential requirements of life. Its chief uses lie in the making of food and in the preservation of fish, meat, butter, and hides and skins. It is also used in

the manufacture of caustic soda, glass, bleaching powder and medicines. It is obtained from *three* principal sources—(i) rock-salt mines, (ii) brine water of inland lakes and wells and (iii) sea water. Most of the salt is obtained from sea water by solar evaporation. But rock salt from salt mines also contributes a substantial quota of the world's total output.

Salt is very widely distributed. The principal producers, however, are the U.S.A., Russia, Germany, France, the United Kingdom, Italy, Spain, Indian Union and China.

Due to its wide distribution and consequent cheapness there is not much international trade in salt. The principal importers are the countries of the tropical regions like Indian Union, Pakistan and Burma. The chief salt exporting countries are the United Kingdom, Germany, Spain and Portugal.

PRECIOUS STONES—Diamonds, emeralds, rubies, sapphires and opals are the principal precious stones. They are highly valued for their beauty, lustre and rarity. They are mostly used in jewellery and ornaments. Of all the precious stones, diamonds are the most important. The chief sources of diamonds are the Union of South Africa (Kimberley mines), Belgian Congo, Gold Coast, South West Africa, Angola, Brazil, British Guiana and Australia. Rubies are deep red stones found chiefly in Burma, Thailand and Ceylon. Sapphires are also found in Burma, Ceylon and Thailand. Emeralds are precious stones of a beautiful green colour found chiefly in Colombia, Russia and Australia. Opals are chiefly obtained from Australia.

ASBESTOS—Asbestos is a fibrous mineral. It is valuable for its heat and electricity resisting properties. In other words, asbestos is non-inflammable, and a non-conductor of electricity. It is chiefly used in the manufacture of fire-resisting materials. Due to its fibrous nature, it can be woven into a kind of cloth suitable for fire-proof covering of machineries, etc. Its demand for roofing purposes is also great.

The chief producers of asbestos are Canada, Russia, France, Rhodesia, Union of South Africa, the U.S.A., and Italy. Canada is the leading producer and produces nearly 70 per cent of the total world output. In the matter of production, Russia stands second and Rhodesia third.

MICA—Mica is chiefly used in electrical industries, motor transport and airships, and in the construction of wireless

apparatuses. Due to its transparency and heat-resisting properties it is also largely used in construction of furnaces and electrical chimneys.

Mica is chiefly found in Indian Union, Union of South Africa, Russia, Brazil, the U.S.A., Canada, Rhodesia and Australia. Indian Union is the largest producer of mica, producing over 60 per cent of the world's total output. She is also the largest exporter.

BUILDING STONES—Building stones are most numerous and most widely distributed of the non-metallic minerals. Slate, marble, and granite are some of them. Due to their wide distribution and consequent cheapness building stones are mostly produced for local markets, there being very little international trade.

SLATE—Slates are metamorphosed clays and shales. They can withstand wide variations of temperature without breaking and are least susceptible to moisture. They are especially valuable for roofing and in the making of blackboards, table tops, sanitary fittings, school slates and refrigerator shelves. The finely powdered slate dusts are largely used in the manufacture of cement, high class bricks and potteries, and coloured glass bottles.

Slates are extensively quarried in the United Kingdom, the U.S.A., France, Belgium and Germany.

MARBLE—Marbles are the decomposed crystalline limestones due to the earth's great pressure and heat. They are extensively used in statuary, ornamental building structures, and vessels. Italy, Greece, the United Kingdom and U.S.A., are large producers of marble. Carrara marble (Italy) is of finest quality, and milk-white in colour.

GRANITE—Granite is obtained from igneous rocks. It is very hard and capable of taking a high polish. Due to its compact structure it can withstand weathering. It is largely used in building constructions, pavements, railway platforms and road-making. It is available more or less everywhere, but the U.S.A., and Switzerland are the leading producers of granite.

Mineral products are numerous, some of which are mineral manures like potash salts, nitrate of soda and phosphates of lime; grindstones; and road-making materials like asphalt, basalts, and traprocks, etc.

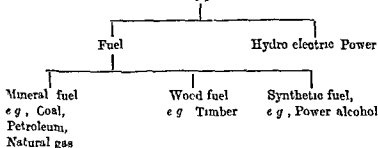
CHAPTER VIII

COMMODITIES—(Contd.)

SOURCES OF POWER

INTRODUCTION—The presence of power resources is a fundamental factor in the economic and industrial prosperity of a country. Modern industrial development would have been impossible, had there been no improvement in power supply of the world. In the past man and his domesticated animals were the chief sources of power. Later on, wind and moving water came to provide motive power. The sources from which power is chiefly derived now a days are somewhat different. They fall into two main groups—(i) fuel and (ii) hydro electric power.

Sources of power



Of all the present day sources of power, coal and petroleum are the most important.

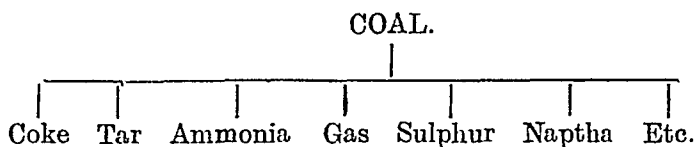
COAL—Coal is the most important source of power. It is derived from the decomposed fossilized vegetable matters underlying the earth's surface. The chief constituent of coal is carbon. Besides carbon, it contains oxygen, hydrogen, nitrogen, sulphur, phosphorus, ammonia, benzene, moisture, ash and volatile matters.

There are many varieties of coal, but according to the percentage composition of carbon in coal it can be broadly classified into three main divisions—(i) anthracite, (ii) bituminous and (iii) lignite coal. Anthracite coal is very hard and heavy and

burns with little flame or smoke. It does not readily ignite; but when it burns it produces intense heat. It is chiefly used in steamship and railways. In anthracite coal the proportion of carbon varies from 90 to 95 per cent. Bituminous coal contains 80 to 85 per cent carbon and contains more gaseous and tarry matters. It burns with great smoke. It is used principally for gas and coke production and household purposes, and also in factories and industrial establishments. Lignite or brown coal is of low heating property and contains as low as 70 to 75 per cent of carbon in it. It is mostly produced for local consumption.

Coke has come to play an important part in metallurgical industry and as such, a reference to it would not be irrelevant. It is an artificial product produced by heating bituminous coal, thereby driving off much impurities, especially volatile constituents. The carbon content of coke is as high as that of anthracite coal and it has a great heating power.

Coal is the chief motive power and is extensively used in steamships, railways and industrial undertakings and also for household purposes. Its bye-products are numerous and are much valued for their varied uses. The principal bye-products are coke, tar, gas, ammonia, sulphur, naphtha, crude oil, benzene, etc. Recently coal has increasingly come to be used for generation of electrical power and production of synthetic petroleum.



World's coal reserve is not unlimited and a time may come when it may be exhausted unless its use is restricted or a substitute is devised to prevent its great consumption. Attention is therefore now directed to devise means for the economic use and proper preservation of coal. Now-a-days coal dust, which is wasted at pit head at the time of raising, is converted into briquetts.

The relative position of different countries in the world's normal raisings of coal is given in the following table,

Countries	Per cent	Countries	Per cent
USA	36.6	Japan	3.0
United Kingdom	21.0	Poland	3.0
Germany	13.0	Belgium	2.5
Russia	10.0	Indian Union	2.0
France	4.0	Others	5.5
China	0		

The total world production of coal excluding USSR in 1951 was 12.8 million metric tons. The relative position of the important coal producing countries of the world in 1951 was as follows —

Countries	Per cent	Countries	Per cent
U.S.A.	41.3	Poland	6.5
Great Britain	18.0	Japan	3.4
Germany	9.4	Indian Union	2.8
Belgium	2.3	Others	16.3
		Total	100.0

U.S.A. is the second producer in coal in the world

The U.S.A., Great Britain, Germany and Russia together produce more than 80 per cent of the world's total output.

The principal coal producing countries of the world are distributed as follows —

NORTH AMERICA—The U.S.A. produces more than one third of the world's total output and is the leading producer of coal. It is estimated that the U.S.A. has over 43 per cent of the world's coal reserves. The Pennsylvanian coalfield is the most productive coalfield in the U.S.A. It produces over 70 per cent of the total output of the country. Most of the coal produced is either anthracite or of the finest bituminous variety. Canada also produces coal.

EUROPE—Great Britain is the second largest producer of coal and produces over one fifth of the world's total. She is the chief exporter of coal. The location of her coalfields near the coast and her proximity to countries with insufficient coal resources are favouring her coal export trade. USSR is the third largest producer of coal in the world. Before the Second World War Germany used to rank as the third largest producer of coal but with the separation of Saar after the war she ranks next to Russia so far as coal production is concerned. Her coal

however, is of inferior quality and is mostly lignite and bituminous. Germany holds the largest coal reserve in Europe consisting chiefly of bituminous and lignite coal. Other European producers are France, Poland, Belgium, Czechoslovakia, Spain, Austria, Hungary and Rumania.

ASIA—Normally Japan used to be the sixth largest producer of coal. Her coal resources are located principally in the island of Kyushiu and Hokkaido. As a producer of coal, India's position is not very satisfactory. As world-producer she holds the eighth place but she is the second largest producer of coal within the Commonwealth. Her coal is not of superior quality and her coalfields are very unevenly distributed throughout the country. China has the third largest coal reserve in the world. Her coal is chiefly of anthracite variety, but her coal resources are very little developed. Manchukuo, Burma and Indonesia also produce coal.

The Southern Hemisphere as a whole is not rich in coal. There is a little production of coal in New South Wales and Queensland in Australia; in Natal, Cape of Good Hope, and Transvaal in South Africa; and in Chile in South America. Recently New Zealand and Tasmania also began to produce coal.

Though the United States of America is the largest producer of coal, her contribution to the export trade of the world is not great. Great Britain is the principal exporter of coal, followed by Germany. Other important exporters are the U.S.A., Poland, Manchukuo, the Union of South Africa, and Australia. The principal coal importing countries are France, Holland, Denmark, Italy, Sweden, the Baltic States, Canada, Japan and Pakistan.

PETROLEUM—Petroleum or rock oil is the most important liquid fuel and is derived from rocks underlying the earth's surface. It is mainly composed of carbon and hydrogen. The oil which is pumped up from underground to the surface is the crude oil. From the crude oil numerous products are obtained by distillation and other methods. The more important of these products are (i) gasoline or petrol which is used principally in the internal combustion engines; (ii) kerosene oil which is chiefly used as an illuminant; (iii) fuel oil chiefly used for heating purposes; (iv) lubricating oil used for oiling machinery parts; (v) paraffin used for candle-making; (vi) asphalt used for road-

making and such other purposes, and (vi) vaseline and paraffin oil used in medicines

Petroleum is a mineral oil of wide occurrence. The ease with which it is obtained and transported by pipe line for long distances accounts for the phenomenal increase of petroleum production in recent years. The relative position of the important petroleum producing countries of the world in 1951 is given in the following table —

WORLD PRODUCTION OF PETROLEUM

(Excluding U S S R) = 550 000,000 Metric Tons

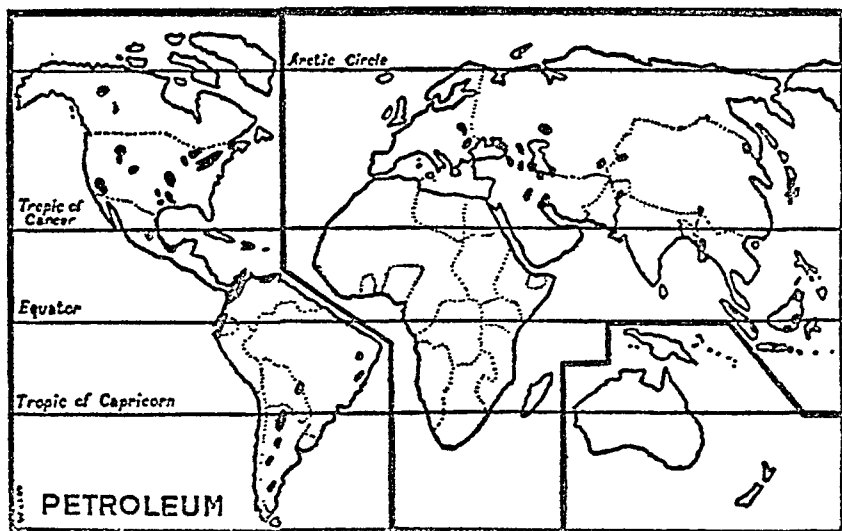
<i>Countries</i>	<i>Per cent</i>	<i>Countries</i>	<i>Per cent</i>
U.S.A.	55.9	Iraq	1.5
Venezuela	16.2	Indonesia	1.3
Saudi Arabia	6.8	Rumania	1.2
Iran	3.1	Canada	1.0
Mexico	2.0	Others	11.0
			<hr/>
Total			100.0

The United States of America, U.S.S.R., and Venezuela control over 80 per cent of the world's total oil production. The principal oil producing countries of the world are distributed as follows —

AMERICA—Over 76 per cent of the total world output is produced in the countries of North and South America. The U.S.A. is the leading producer of petroleum in the world, producing nearly 50 per cent of the world's total. The greater part of the petroleum produced is obtained from the three states of Texas, Oklahoma and California. Other important oilfields lie in the states of Kansas, Louisiana, New Mexico, Wyoming and Pennsylvania. Canada has a small output. Her oilfields are located mainly in Alberta and Ontario. Mexico is an important producer. Her oilfields lie near the Gulf coast. The countries of South America are great producers of petroleum. Venezuela is the second largest producer of petroleum. Colombia, Argentina, Peru, Ecuador and Trinidad are all important producers of petroleum.

EUROPE—Europe as a whole is not so fortunate as North and South America so far as petroleum resources are concerned.

Russia easily leads over all other European producers and ranks third in the list of world-producers. Her main oilfields are located in Baku and Grozni in Transcaucasia. Recently a chain of new oilfields has been developed on both sides of the Ural mountains extending from Ukhta to Sterlitamak on the west



World Distribution of Petroleum

and in Ufa in the south-western slope. Besides these there are oil-fields in Uzbek, Turkomen and Kazak also. Besides Russia, other important European producers are Rumania, Czechoslovakia, Hungary, Poland, Germany and France. The United Kingdom is very deficient in mineral oil for which synthetic petroleum production has made a great headway in that country.

ASIA—Iran, Saudi Arabia, Iraq and Indonesia rank as important world-producers of petroleum. Japan, India, Burma, Pakistan and the Bahrein Islands are the other important Asiatic producers. In 1945 Middle East's contribution was over 5½% of the world's total output, and it has been estimated that the Middle East contains over 80 per cent of the world's proved reserves. In Pakistan small oil-fields lie in the Punjab (Attock) and Beluchistan, and in India Assam (Digboi and other fields) is the most important producing region.

The position of Africa and Australasia in petroleum production is insignificant. Only Egypt produces a small amount on the west coast of the Red Sea.

Petroleum has an extensive world trade. The principal exporting countries are Venezuela, the U.S.A., Iran, Iraq, Saudi Arabia, Rumania, Indonesia, Mexico, Colombia, Peru, Russia, Trinidad and Bahrain Islands. The chief importers are the United Kingdom, France, Germany, Canada, Japan, Italy, Holland and Argentina. The U.S.A. is a large importer of crude oil for re-export purposes after refining.

The world's proved reserves and estimated resources of petroleum have been estimated by eminent geologists to be 73 billion and 600 billion barrels (a barrel = 34.97 Imp. gallons) respectively. It is believed that the proved reserves will last for another 24 years at the current rate of the world's annual consumption. The distribution of the proved reserves and estimated resources of petroleum in the world is given in the following table —

<i>Countries</i>	<i>Proved Reserves</i>	<i>Estimated Resources</i>			
	In Billion Barrels	Per cent	In Billion Barrels	Per cent	
U S A	25.0	34%	100	17%	
Venezuela, Mexico & Colombia	9.0	12%	45	8%	
U S S R	6.0	8%	150	25%	
Middle East	30.0	41%	150	25%	
Others	3.0	5%	155	26%	
Total	73.0	100%	600	100%	

Products similar to those of petroleum are obtained by the destructive distillation of oil shales. This is possible because oil shales contain some amount of oil. The shales are crushed and after being crushed are subjected to intense heat in a closed vessel. The gas which comes out is then converted in condensers into crude oil which when refined becomes gasoline or motor spirit. There are extensive deposits of oil shales in many parts of the world but few countries have taken advantage of those

deposits due to the cheapness of mineral oil. The United Kingdom, France, Japan, Union of South Africa and Australia, however, have developed shale oil industry on a large scale.

"Since petroleum is a matter of life in peace and of death in war, it is hardly surprising that in countries without oil attention was focussed on securing foreign resources by all possible means, ranging from financial investment (as in Anglo-Iranian Oil Company in Iran) to political influence (as in the Middle East affairs) and even military action (as in Palestine war)."

SYNTHETIC PETROLEUM—Owing to the abnormal increase in demand for petroleum for use in automobiles, aeroplanes and ships, countries deficient in its supply are trying to produce it synthetically from coal. There are different processes of synthetic production but the Bergius and Franz Fischer processes are important. In the Bergius process bituminous coal is finely powdered and heated to a very high temperature with hydrogen under great pressure. This effects the liquefaction of coal into crude oil wherefrom petrol is produced. The process is otherwise known as the hydrogenation of coal and is very much practised in England. In the Franz Fischer process coal is distilled at low temperatures. This process is otherwise known as low-temperature carbonisation of coal and is largely practised in Germany. Of the two processes, the Franz Fischer process is more economic to operate and is used more widely for its comparative cheapness. Under Bergius process one ton of coal yields 45 gallons of petroleum but under Franz Fischer process one ton of coal yields 98 gallons of petroleum.

NATURAL GAS—Natural gas is a very good fuel. It is also very cheap. But it cannot be conveniently transported over a long distance for which its production is mostly of local importance. The U.S.A. is the leading producer of natural gas. Other important producers are Canada, Venezuela, Rumania, Mexico, Poland and Russia.

Natural gas is obtainable from petroleum mines and is used in the manufacture of cements, pumping out mineral oil and as domestic fuel.

HYDRO-ELECTRIC POWER—The development of manufacturing industries generally depends on the adequate supply of coal or mineral oil; but in the countries where these two items of power are either short or totally absent, industries can be

developed with the aid of hydro electric power. The main advantage of hydro electricity is its cheapness which results in the low production cost of the manufactured products. Recently hydro-electricity has come to be regarded as the most important and economical source of power. It is generated by dynamos driven by rapidly moving water currents. Certain physical and non physical conditions are essential so that hydro-electric power might be developed in a country. They are as follows —

(i) **MOUNTAINOUS RELIEF**—In mountainous countries the rivers descend by rapids and falls, thereby favouring the utilisation of water power for generation of hydro-electric power.

(ii) **REGULAR AND FAIRLY UNIFORM DISCHARGE OF WATER ALL THE YEAR ROUND**—The constant and regular flow of water in the power producing rivers throughout the year makes continuous supply of hydro-electric power possible. Natural reservoirs like lakes and snow capped mountains or artificial storage works like dams and tanks together with well-distributed rainfall all the year round tend to keep constant the flow of water.

(iii) **A SUFFICIENT VOLUME OF WATER**—If the volume of water is low, no electricity can be produced. Moreover the flow must always be ice free and of uniform velocity. Any variation in these general laws or the diversion of the course of the river hampers the generation of hydro electric power.

(iv) **MILD WINTER**—Mild winter is helpful for the production of hydro electric power, for if the winter is very severe there is every likelihood of the water becoming frozen.

(v) **PROXIMITY TO CONSUMING CENTRES**—The cost of supply becomes very high if the distance between the power generating centre and the consuming centre is more than 400 miles. Proximity to consuming centres is therefore essential to hydro-electricity generating undertakings, and this accounts for the great development and extensive use of hydro-electric power in close proximity of highly industrialised and densely populated regions.

(vi) **DEFICIENCY IN OTHER SOURCES OF MOTIVE POWER**—Want of coal and mineral oil necessitates the production of hydro-electric power.

Hydro-electric power has an added advantage over coal and oil. It is cheap and unlike coal and petroleum is inexhaustible. Hydro-electric power is indispensable in some industries where very high temperatures are essential. Such industries are the production of aluminium, calcium carbide, woodpulp and the manufacture of artificial manures. It is interesting to note that the development of hydro-electric power has largely attributed to the industrial expansion of countries like Italy, Switzerland, Norway and Sweden which are deficient in coal and petroleum resources. Even in regions where both coal and hydro-electricity are present, hydro-electricity is preferred; since it is not only cheap but also more convenient to use. The only difficulty for its development is the heavy initial cost of construction. At present the development of hydro-electric power is mostly concentrated in countries of high economic standing. More than 60 per cent of the total output of hydro-electricity is accounted for by highly industrialised countries of Europe, the U.S.A. and Canada.

Based on the world's total hydro-electric generation, the relative position of the important generating countries is as follows:—

TOTAL WORLD PRODUCTION OF HYDRO-ELECTRICITY=68·35 Million Kilowatts.

<i>Countries</i>		<i>Per cent</i>	<i>Countries</i>		<i>Per cent</i>
U. S. A.	...	29·0	France	...	8·0
Canada	...	12·9	Germany	...	5·4
Italy	...	9·0	Indian Union	...	0·7
Japan	...	8·9	Others	...	26·1

The world's principal hydro-electric power installations are distributed as follows:—

NORTH AMERICA—North America has developed her hydro-electric power resources much more than any other continent of the world. The U.S.A. is the leading producer and her principal hydro-electric installations are located in the Lake districts and Rocky mountain regions. Canada ranks next to the U.S.A. in point of actual development and her developments are chiefly concentrated in Eastern districts. In North America,

the Niagara Fall supplies power to many industrial towns of the U S A and Canada

EUROPE—In Europe the countries which are most developed in actual installations in order of importance, are Italy, France Germany, Switzerland, Norway, Sweden and Russia Finland Spain Austria Yugoslavia and the United Kingdom are the other important producers of hydro electric power

ASIA—Among Asiatic countries Japan and Indian Union are important in actual installations Indian Union has almost all her hydro electric installations located in the south The rugged relief of the Deccan peninsula provides ideal conditions for water power developments

AFRICA—Africa has the largest water power reserve in the world but her actual development is very meagre In the Union of South Africa some beginnings to tap her potential resources have been made in recent years

Like Africa, South America and Australasia too have great reserve of water power resources But the development so far is not great Tasmania and New Zealand have made some head way in the development of hydro electric power

Hydro electric power cannot be transmitted over a distance of 400 miles from its origin for which its production is mostly a matter of local significance

POWER ALCOHOL—Power alcohol has come to be increasingly used as a source of power It is chiefly obtained from potatoes, timber, molasses and oilseeds Germany is already producing large quantities from potatoes Nearly 20 per cent of her potato production is used in the manufacture of power alcohol Indian Union is also producing large amount from molasses Other important producers are Canada, Sweden, Russia and the U S A

TIMBER—Timber is used as fuel in all those countries where forest resources are plentiful and there is no coal or any other source of power The use of timber as fuel is decreasing rapidly with the gradual exhaustion of the world's forest resources But Russia Indian Union Sweden, Finland and Canada even now use timber as fuel for industrial and household purposes The different uses and other important aspects are dealt with in the succeeding chapter

CHAPTER IX

COMMODITIES—(Contd.)

FOREST PRODUCTS

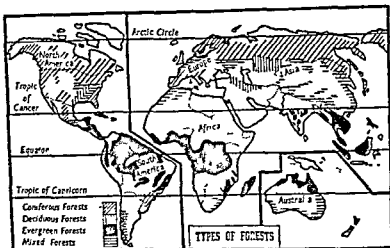
INTRODUCTION—The forests are important for their direct and indirect benefits. Forests play an important part as sources of fuel and raw materials of various industries and also in making houses, household furniture, rayon, etc. and hence, it must be admitted that man's daily life would be more or less paralysed in the absence of forests. Their influence on climate is great. They obstruct the course of the rain-bearing winds and thus cause heavier rainfall. They also tend to minimise the extreme variations in climatic conditions. Forests by preventing soil erosion enhance the productivity of the soil. Besides, they yield valuable economic products. These are timber, lac, gum, quinine, tar, turpentine, resin, essential oil, dyestuffs and tanning materials, wood-alcohol, camphor, woodpulp, oilseeds, wild rubber, guttapercha, etc. Forests also provide facilities for the grazing of cattle.

Forests occupy an extensive area of the earth's surface and nearly one-fourth of her total land area is covered with them. Forests can be broadly classified into *three* main groups—(i) coniferous forests, (ii) deciduous forests, and (iii) evergreen forests.

CONIFEROUS FORESTS—Coniferous forests grow in cool temperate regions where winters are cold and severe and summers are short. The pine, fir, larch, spruce, hemlock, cypress, and juniper are the typical trees of these forests. The northern parts of the U.S.A. and Canada, Scandinavia, Finland, Soviet Russia and the Baltic States in the Northern Hemisphere, and south of South Australia and the mountains of New Zealand in the Southern Hemisphere are the important coniferous forest regions of the world.

Proximity to markets, abundant availability of labour and hydro-electric power, easy transport, facility of collecting and despatching timber from such forests, and abundance of the same species of trees in the same regions have contributed very greatly to the development of lumbering industry in these regions.

Coniferous forest wood is largely used for the manufacture of woodpulp newsprint, paper rayon and matches and in the making of packing cases. Masts and decks of ships are also made from such wood. Turpentine oil and resin are obtained by distillation of pine wood in the coniferous belt.



World Distribution of Forests

DECIDUOUS FORESTS—Deciduous forests grow in the mid temperate belt where temperature is moderate and rainfall is well-distributed throughout the year. The oak, elm, maple, beech, ash, walnut, jarrah and karni are the typical trees of these forests. These are mostly used in the manufacture of furniture and materials for houses. The trees shed their leaves once a year. They are found in North Western Europe, British Columbia, North Western U.S.A., Southern Tasmania and New Zealand.

EVERGREEN FORESTS—Evergreen forests are found mainly in the tropical and equatorial forest regions of the world. The trees include mahogany, ebony, rosewood, teak and sandalwood. They yield high class cabinet wood. The West Indies, Central America, the Amazon basin of South America, the Congo and the Zambesi basins of Africa, Indonesia, Siam, Burma and Indian Union are the principal producing regions.

The development of lumbering industry in the evergreen forest regions has been greatly handicapped due to insufficient supply of labour and hydro-electric power, absence of absorbing market, heavy rainfall causing difficulty in the collection and transportation of timber, bad conveyance and inconvenience in river transportation due to rapids and falls in the courses of the rivers.

TIMBER—The forests are important mainly for their yield of timber. It is chiefly used for house-building, manufacture of furniture, ship-building, manufacture of woodpulp, manufacture of vehicles and agricultural implements, manufacture of boxes, crates, etc., for packing fruits, vegetables and various other things, and production of wood alcohol, essential oils, resins, tar, camphors, etc., by distillation. Besides, much of the timber even now is used as fuel. There are mainly *two* varieties of timber—(i) soft wood and (ii) hard wood. Soft wood is strong, flexible and easy to work, while hard wood is stiff and very difficult to work. The coniferous forest belt is the chief source of soft wood and supplies nearly 80 per cent of the world's total requirements of timber.

The principal timber-producing countries of the world are distributed as follows :—

NORTH AMERICA—Nearly one-third of the land area of Canada is covered with forests. She is said to be "the Commonwealth's storehouse of soft-wood supplies." She is the largest exporter and second largest producer of soft wood. The principal producing regions are British Columbia, Ontario and Quebec. British Columbia alone produces nearly 50 per cent of the Canadian output. In U.S.A., forests cover nearly one-fourth of the land area. Her forest regions are mostly located in Alaska, Appalachian mountain regions and Rocky mountain districts. Newfoundland too is an important producer of soft wood

EUROPE—In Europe the chief sources of timber are the coniferous forests which extend over Scandinavia, Finland, the Baltic States and Soviet Russia. Forests cover nearly one-half of the total area of Sweden. Sweden is the most important timber-producing country in Europe and her timber products form over 40 per cent of her total exports. In Norway also, the forests are the chief source of wealth, forming about one-

third of her total exports and nearly one quarter of her total area is covered with forests. Forests occupy nearly 75 per cent of the total area of Finland and lumbering constitutes her principal industry. Soviet Russia has the largest forest reserve of the world and her forests are estimated to contain nearly 30 per cent of the world's timber resources. She leads over all other countries in timber production in Europe and is one of the principal timber-exporting countries of the world.

ASIA—Asia has large areas of land under forests. Indian Union, Burma, Siam, Indonesia, Malaya, China and Japan are all rich in forest resources. In undivided India nearly one fifth of of her total area is covered with forests. Burma and Siam are important as the world's principal sources of teak wood.

South America, Central America, Africa and the West Indies are the world's storehouse of valuable tropical hard wood. South America has the largest reserve of furniture wood in the world. Since Australia is too dry for forest development she has a meagre output of timber.

In spite of its bulkiness and high transportation costs, timber occupies an important place in the list of commodities entering into international trade. Soft woods are the chief timbers of commerce and account for over 80 per cent of the world trade. The chief timber exporting countries of the world are Canada, Russia, Sweden, Norway, Finland and the U.S.A. The industrial countries of Europe like Great Britain, Germany, France and Belgium are the principal importers. Besides an extensive import of soft wood, tropical hard wood for furniture making, are also imported by European countries from the West Indies, Central America, Burma, Siam, Indonesia, Indian Union and South America.

The rate at which the forest resources of the world are being exploited is alarming and if the present rate continues the world's forest reserves will be exhausted within a very short period. Efforts are therefore made to conserve the forests by protecting them from indiscriminate cutting and by re-afforestation.

GUMS AND RESINS—Both gums and resins are chiefly obtained from exudation of the stems and branches of trees. They are both solid substances and are very similar in appearance. But they differ in chemical compositions and reactions.

Resin is inflammable whereas gum is non-inflammable. Resin is insoluble in water, but soluble in alcohol and turpentine oil, while gum is soluble in water but insoluble in alcohol and turpentine oil.

Resin is principally used in the manufacture of paints and varnishes, paper and cheap grade soaps and also for burning as incense. The principal producers are the U.S.A., Russia, Sweden, Canada, Norway, the Baltic States and Finland.

Gums are used for the manufacture of adhesive pastes, fine water-colours, blotting papers and high grade inks and also in textile industries for stiffening clothes. The principal producing countries are North Africa, Sudan, Indian Union, Arabia, West Africa and the Union of South Africa.

LAC—Lac is a resinous substance secreted by certain insects living on trees and is derived chiefly from tropical forests. Its principal uses are in the manufacture of sealing wax, shellac, gramophone records, dyes, paints and varnishes. Indian Union has a practical monopoly in lac production.

CHAPTER X

COMMODITIES—(Contd)

MANUFACTURED PRODUCTS

INTRODUCTION—The manufactured products are varied and numerous and their production is dependent on many factors some geographical some economic some political and some historical. The geographical factors determining the localisation of manufactures are climate and an abundant supply of raw materials and cheap power. the economic factors are proximity to markets well developed transportation systems and an adequate supply of labour and capital. political factors are government patronage tariff bounties and subsidies and historical factor is the momentum of the start i.e. the industrial inertia.

Factors of Industrial Development

Geographical	Economic	Political	Historical
(i) Climate	(i) Accessability to markets	(i) State patronage	(i) Industrial inertia
(ii) Raw materials	(ii) Adequate labour supply	(ii) Protection	
(iii) Power	(iii) Adequate Capital	(iii) Bounties and subsidies	
	(iv) Well developed transport system		

GEOGRAPHICAL FACTORS

CLIMATE—The localisation of the manufacturing industries largely depends on climate. It is the moderate and equable climate of the temperate zone which has made it the home of all manufacturing industries. Again different industries require different types of climatic conditions. Cotton textile industry requires a damp and humid climate as the dry fibres of cotton are likely to break if they are spun and stretched in a dry atmos

phere. The phenomenal development of cotton textile industry in Lancashire is largely attributed to her humid climate. The same factor accounts for the successful development of the cotton textile industry in Bombay, Ahmedabad, and Osaka. Woollen industry, on the other hand, requires dry climate for the successful spinning of the woollen yarns and principally for this climatic reason it has developed in Yorkshire. Flour milling industry flourishes under dry climatic conditions, for which this industry has greatly developed in the inland centres such as St. Paul and Minneapolis in U.S.A., Budapest in Hungary, and Karachi in Pakistan. Cinematography industry requires bright sunshine and dry weather, and the unique success of this industry is due to the favourable condition present in Los Angeles. Climate also determines the nature of industries in a particular locality. The warm wet climate of the Indian plains necessitates light clothings for the Indians and it is for this reason that cotton textile industry has developed in Indian Union. The severity of cold in Kashmere and Switzerland has favoured the growth of woollen textile industry there.

Moreover, climate greatly exercises its influence on industries in many other ways. Tropical climate makes man indolent and idle whereas temperate climate invigorates man. The temperate climate of the U.S.A., Western Europe and Japan has made the inhabitants of these places very active resulting in the phenomenal development of various industries by proper utilisation of the natural resources. The workers of the tropical regions become more quickly exhausted than those of the temperate regions and this accounts for great difference in the output of industrial products of these two different climatic regions. This can be called an indirect effect of climate on industry. The jute industry of West Bengal and the paper industry of Norway, Sweden and Canada owe their remarkable success due to favourable climatic condition.

RAW MATERIALS—Presence of raw materials is a very important factor in localisation of manufacturing industries. Proximity of raw materials to the industrial centres is essential in as much as no industry can develop satisfactorily merely by importation of requisite raw materials from abroad. The nature of raw materials of a particular place determines the type of industries to grow there. The development of jute

industry in Bengal that of iron and steel industry in Bihar and that of cotton textile industry in Bombay would not have been possible if these industries did not find the requisite raw materials near at hand. In some industries the nature of the raw materials is such that the industries using them should be located near them e.g. manufacture of bricks, potteries and porcelains. Industries which are to be fed by agricultural or forest products are generally established in or near about the regions rich in agriculture or forests. Because of the easy availability of softwood from the coniferous forests wood pulp and paper industries have developed in Norway, Canada, Northern Europe and Japan. It is the abundance of grapes which has led to the establishment of breweries in France, Italy and other countries in the Mediterranean climatic regions.

POWER RESOURCES—Modern industries rely upon coal as the chief source of power. The smelting of metallic ores for the manufacture of metals could only be carried on coalfields and it is for this reason that most of the iron and steel industries is located in the important coalfields of the world. There are some industries which require excessively high temperatures such as the production of aluminium and electro chemicals. For their development cheap hydro electric power is indispensable.

ECONOMIC FACTORS

MARKET—Proximity to markets is an important factor in the localisation of manufactures. Industrial organisations are entirely dependent for their success on the sale of their manufactured products. No industry can continue for long unless it has a ready market near at hand. The low cost of importation of raw materials and exportation of the finished products is also a contributory factor for the development of an industry. The brick and pottery industries of the world are all located near their markets because much costs of transport thereby might be saved. The extent of the market also determines to a great extent the size of the manufacturing industries. If the market is large and extensive the manufacturing industries supplying that market need be big and highly organised. The phenomenal growth of Lancashire cotton mill industry has been possible only because the market for her products is world wide in extent.

TRANSPORT—Accessibility to markets largely depends on the development of means of transport. Transport plays a predominantly important part in the movement of goods and mobility of labour ; and the more well-organised is the transport system of a country, the more developed are her industries. “Canada is said to be the making of railways.” Her agricultural and industrial development is largely attributed to the development of her transport facilities especially to that of the railways. The industrial development of Calcutta and Bombay is largely due to the well-developed transport system.

LABOUR—An abundant supply of labour is a vital factor in the localisation of a manufacturing industry. Different industries require different grades of labour and the success of each depends upon the supply of requisite labour. Chemical, electrical and machinery-making industries require highly skilled and specialised labour whereas cotton and jute industries require an abundant supply of cheap low-grade labour. The development of chemical industry in Germany is largely accounted for by her highly skilled labour force, while an abundant supply of cheap labour is responsible to a very great extent for the successful development of cotton textile industry in Japan. High efficiency of labour force undoubtedly adds to the industrial strength of a country.

CAPITAL—Modern industries require an elaborate system of machineries for their successful development. Large amount of capital thus becomes necessary. Inadequacy of capital greatly explains the industrial backwardness of India and China.

POLITICAL FACTORS

GOVERNMENT—Attitude of the state towards industries often explains the industrial activity of a country. If the Government is weak and incompetent, many obstacles in the way of industrial and commercial development of a country crop up, whereas with the development of industry and commerce under the patronage of a stable government the economic stability of the country gradually increases. Mexico, China, Japan, Germany and India furnish best examples. Although Mexico is rich in natural resources her industrial development has been very greatly hampered due to frequent internal disorders resulting from her

weak government, and the very same reason accounts for the poverty of China. State paternalism in Germany and Japan largely attributed to their industrial prosperity. In the case of India however condition is just the reverse. There was a time when court patronage was a great factor for the successful development of *muslin* industry in Bengal but with the lapse of time the apathy and indifference of the government have not only made this industry almost extinct but have been responsible for India's industrial backwardness in general.

PROTECTION BOUNTIES ETC—Protection bounties etc., likewise greatly accounted for industrial development of many countries. The development of iron and steel, sugar and cotton industries in India would have been long delayed if protection would not have been granted to them.

HISTORICAL CAUSES

INDUSTRIAL INERTIA—Industries often continue to prosper in a particular locality inspite of the fact that all their initial advantages are gone. Sheffield cutlery holds its field even now in international markets though the advantages of its local ores are long gone.

Thus it is evident that the localisation of manufactures largely depends on geographical and non geographical factors

CHAPTER XI

TRANSPORT

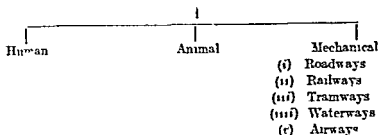
INTRODUCTION—The economic and industrial prosperity of a country depends to a very great extent on the nature of development of her transport systems. Transport facilities are indispensable for movement of goods and mobility of labour. Modern factory system of production would have been impossible in the absence of well-developed transportation systems.

In the present-day world no country can be independent of any external source of supply. Most of the industrially developed countries are dependent on others for essential raw materials or food-stuff. Likewise, industrially backward countries must have to depend on foreign supplies of manufactured products. The temperate countries like Great Britain and France cannot produce rubber and tea. They cannot get their supplies unless there is foreign trade, and the growth of foreign trade presupposes a well-developed transport system. Transport facilities to be really helpful must be both cheap and quick. Otherwise, the economic interest of a country would suffer and the industries would not develop.

MODES OF TRANSPORT—The modes of transport differ as between different countries. The physical features and climatic conditions are largely responsible for such difference. In the densest jungles of the Amazon and Congo basins man himself is the only transport, because even animal cannot make their way in such jungles. In Central Africa the mountainous nature of the country makes road and railway construction difficult and it becomes imperative that man himself will carry goods. In cold tundras reindeer and dogs are to drag sledges over the snow as the climate is too severe for any other mode of transport; while camel is the *ship* of the Sahara desert. In the mountainous districts of Europe sure-footed mules are the most useful mode for carrying trade. But the various means of transport mentioned above are costly, inconvenient and slow and none of these can be relied upon for the development of industry.

Mechanical transport like motor cars, railways, steam boats, ships and aeroplanes is cheap and quick and in modern times it has come to play the most important role. It requires, however, well planned and well-developed routes such as roadways, railways, tramways, waterways and airways.

MODES OF TRANSPORT



ROADWAYS—From time immemorial transport by road constitutes an important part of the transport systems of a country. Good roads are the preconditions of industrial development. Poor roads permit limited trade and hinder economic development of a country. All the industrialised and commercially developed countries of the world have a magnificent roadway system. The advantages of road transport are —

- (i) It is more convenient and economical form of transport for lighter traffic and short distances,
- (ii) It yields direct service more easily than the other forms of transport, because it involves no transshipment cost, and
- (iii) It serves rural areas more cheaply than railways or waterways.

It has been rightly said that 'the road is one of the great fundamental institutions of mankind. We forget this because we take it for granted. It seems to be so necessary and natural a part of all human life that we forget that it ever had an origin or development, or that it is as much the creation of man as the city and laws.'

The following table shows the roadway development of some countries.—

<i>Countries</i>	<i>Area in sq. miles (approx.)</i>	<i>Road mileage (approx.)</i>
U.S.A.	3,022,387	3,312,975
Indian Union ...	1,136,069	321,285
Pakistan	361,218	57,399
France	212,000	390,000
Great Britain ...	89,000	200,000

<i>Countries</i>	<i>Road mileage per One lakh of population</i>	<i>Road mileage per square mile of area</i>
U.S.A.	2,200	1.09
France	920	1.84
Great Britain ...	409	2.02
Indian Union ...	90	0.28
Pakistan	76	0.16

Great Britain, Germany, France, Japan and the U.S.A., have the largest road mileage in proportion to their areas and they are also the most highly developed countries of the world, while countries like India, Pakistan and China with poor road mileage are the most backward.

The development of motor transport in recent years has emphasised once again the importance of good roads for carrying the inland trade of a country. Motor transport is direct, quick and cheap and is much better for short distance transportation. The United States of America has the largest mileage of metalled and unmetalled roads and the heaviest motor traffic in the world. Indian Union has a little over 300,000 miles of roads of which only 71,000 miles are metalled and suitable for motor traffic. Her road development stands in sad contrast to that of the U.S.A., Great Britain and Germany. Her growing industries require more and more good roads, and a systematic road development is an urgent requirement of the country.

The development of road depends on the relief and climatic condition of the locality and also on the supply position of materials necessary for road construction. Good roads are generally constructed on level land.

RAILWAYS—Railways play a very important part in the economic life of a country. Canada and Siberia offer best examples,

because the economic prosperity of some parts of these two regions is solely attributable to the proper development of the railway system. Railways are the quickest means of long distance land transport and hold a very important place in the inland trade of a country. In carrying heavy and bulky goods by land over long distances they are unrivalled.

Railway development has made a phenomenal progress in modern times. As late as 1840 the total railway mileage in the world was less than 5 000 miles whereas in the U.S.A. alone the railway mileage operated in recent years is in the neighbourhood of 237 000 miles. At the present time there are more than 1 000 000 miles of railways distributed over the various parts of the world. The following table shows the railway development of some countries —

<i>Countries</i>	<i>Total Railway Mileage</i>	<i>Inhabitants per mile of line</i>
U.S.A.	2 36 999 miles	636
Belgium	6 470 "	1,345
Germany (pre war)	42,299 "	1,565
France	26 427 "	1,604
United Kingdom	20 080	2,440
Italy	14,220 "	3 315
Indian Union	34 079 "	10 468
Pakistan	7 057 "	10,725

The railway system of a country is always connected with its relief. Satisfactory extension of railway system is not possible in mountainous regions due to undulating nature of the land. Likewise lowlands having excessive rainfall, snow covered plains and the unfavourable natural condition of the deserts hamper to a very great extent the proper development and expansion of railway system. The equatorial regions, the Sahara desert regions, Siberia, Canada, North Polar regions, etc. bear testimony to this. As a general rule it may be said that "railways follow the lines of least resistance". In crossing mountains they make use of passes and gaps and even in the plains they will make a long detour, if necessary, to avoid obstacles like swamps and gorges.

The economic prosperity of a region also exercises a good deal of influence on the development and expansion of railway

system. Satisfactory extension of railways is generally made in densely populated, highly industrialised and commercially developed regions and this accounts for the great development of railways in the U.S.A. and the countries of Western Europe which are highly developed in industries and commerce. On the other hand, sparse population and inadequate commercial and industrial development have hindered the extension of railways in the desert regions of Africa and Australia, the tundras of Canada and Siberia and the dense forest regions of South America.

RAIL vs. ROAD—Recent development of road transport has greatly affected railways. The great improvement in motor transport has resulted in a keen competition between motor transport and railways. Motor transport is quicker and more mobile than railways. On the railways goods are to be transhipped from sidings to their proper destination, while in motor transport goods can be transported direct to their destination. Expansion of railways throughout the length and breadth of a country is not possible, but most of its places can easily be linked up through the medium of motor transport. Moreover, travel by rail is restricted to a particular time and place, whereas in the case of the latter there is no such restriction and travel according to convenience is always possible. Again, the discoveries and working of new oil mines are reducing the price of gasoline and hence motor transport cost. But railways have to maintain a permanent way with elaborate signal stations for which the cost of transport is almost stationary. Motor transport is thus proving a serious competitor of railways. It is undeniable that motor transport is much better for short distance transportation, but for long journeys and heavier and bulkier traffic railways are the more convenient and economical form of transport. For an all-round transport development it is essential that the two forms of transport should be complementary rather than competitive. In other words, the two methods of transport should be co-ordinated so that the roads may properly serve as feeders of the railways.

Railway developments of the different countries of the world are dealt with in their respective places. Only a brief description of the important trans-continental railway lines of the

world is given in this connection. The most important trans continental railway lines are —

- 1 The Trans Siberian Railway
- 2 The Canadian Pacific Railway
- 3 The Canadian National Railway
- 4 *The Orient Express Route*
- 5 The Cape Cairo Route

THE TRANS SIBERIAN RAILWAY—The Trans Siberian Railway covers a distance of over 5 800 miles from Leningrad to Vladivostok and provides a direct railway route between European and Asiatic Russia. Starting from Leningrad—the Baltic Sea Port of Russia—the line goes to Moscow, Samara (where it crosses the Volga), Ufa, Chelyabinsk, Omsk, Krasnoyarsk (where it crosses the Yenisei), Irkutsk, Chita and Khabarovsk and thereafter terminates at Vladivostok, the Pacific Port of Russia. There is an alternative route from Leningrad via Vyatka and Perm to Chelyabinsk completed in recent years which shortens the distance between Leningrad and Vladivostok by about 400 miles.



Trans Canadian Railways

THE CANADIAN PACIFIC RAILWAY—The Canadian Pacific Railway connects the Atlantic sea board with the Pacific

sea-board of Canada. It starts from St. John on the Atlantic coast, goes to Montreal, Ottawa, Sudbury, Port Arthur (Lake Superior Port), Winnipeg, Brandon, Regina and Medicine Hat, and thereafter crossing the Rocky mountains by the Kicking Horse pass terminates at Vancouver on the Pacific coast. The settlement of the central parts of Canada is largely due to this railway.

THE CANADIAN NATIONAL RAILWAY—The Canadian National Railway begins from Halifax, goes to Quebec, Winnipeg, Saskatoon and Edmonton, and crossing the Rocky mountains by the Yellowhead pass reaches Prince Rupert, the most northerly port of Canada.

THE ORIENT EXPRESS ROUTE—The Orient Express route begins from Paris, goes to Nancy, Strassbourg, Karlsruhe, Ulm, Munich, Linz, Vienna, Bratislava, Budapest, Belgrade, Nish and Sofia, and thereafter terminates at Istanbul. The total length of the route is nearly 2,000 miles.

THE CAPE-CAIRO ROUTE—The Cape-Cairo route was visualised by Cecil Rhodes but his scheme did not materialise even now. The southern section starts from Capetown, goes to Hutchinson, De Aar, Kimberley, Mafeking, Bulwayo, Livingstone, Elizabethville and Bakuma and terminates at Port Francqui. There is a break between Port Francqui and El Obeid. From El Obeid the northern section goes *via* Sennar, Khartoum and Berber to Wadi Halfa. Here there is another break from Wadi Halfa to Aswan. From Aswan the route follows the Nile to Cairo. The Cape-Cairo route when completed will be the longest one and will cover a distance of over 9,000 miles.

TRAMWAYS—Tramways are important in urban transport. They are mostly concerned with transport of passenger traffic and are very little used in transport of goods. Their importance in the inland trade transport of a country is not great.

WATERWAYS—The great rivers of the world acted as natural highways of commerce long before any other means of communication were known. Even now in transporting bulky materials like metallic ores, coal, etc., waterways are more important than railways and other forms of transport. Water transport is cheaper than railways. Waterways are the nature's highways and their upkeep costs less than that of the railways, but the slowness and irregularity of water transport have diverted

much of the traffic to railways. With the introduction of steam boats and steamships in water transport it is believed that its importance will grow in carrying the inland trade of a country.

Water transport may be either *inland* or *oceanic*. In inland water transport rivers, canals and lakes are included whereas in oceanic transport seas, oceans and inter oceanic canals are important.

INLAND WATER TRANSPORT—In inland transport system of a country rivers play a very important part. Rivers to be greatly helpful for inland trade and transport should have the following characteristics —

- (i) *They should be free from ice to enable continuous traffic possible throughout the year*
- (ii) *They should be deep enough to allow big steamers and boats to ply in them*
- (iii) *They should be free from rapids and falls*
- (iv) *They should have continuous supply of water*
- (v) *They should run through productive and densely populated regions, and*
- (vi) *They should flow to open seas*

The importance of rivers as transportation agencies has been enhanced by construction of inter connecting canals in almost all the important commercially developed countries of the world. A description of the inland water transport systems of various countries of the world—Great Britain, Germany, France, U.S.A. and Indian Union and Pakistan—will tend to show how they have helped the development of their trade and industry.

GREAT BRITAIN—Great Britain is an insular country with no part of the country more than 100 miles off from the sea for which there is a good deal of facility for coastal trade. Besides on all sides navigable rivers flow down which make inland communications very much easy and least expensive. The Ouse, Trent, Mersey, Thames, and Severn with their tributaries are navigable throughout the year. The Ouse (Yorkshire) is navigable throughout its length. The Trent, the Mersey, the Thames and the Severn are all inter connected with a network of canal system which has enhanced all the more their value for transportation purposes. The Trent is navigable as high as Gainsborough, the Thames as high as Hampton and the Severn as far as Stourport. Besides,

the Tees, Tyne, Clyde and many other rivers are very much helpful for inland traffic.

The canal system is equally important. The Manchester ship canal enables ocean-going liners to go to as far as the inland centre Manchester, without unloading at the outerport Liverpool. The Berkley ship canal enables ships to go straight to Gloucester without stopping at the estuary of the Severn. The Bridge-water canal connects Manchester to Worsley, an important coal centre.

The most important of the Scottish canals is the Forth and Clyde canal which has lessened greatly the distance between the eastern and western ports of Scotland. The Caledonian canal constructed through the narrow valley of Glenmore enables small ships to go from the east to the west of Scotland and *vice versa*.

GERMANY—Germany is particularly fortunate in having a thorough network of inland water communication system. The Rhine, Elbe, Oder, Weser and Ems—the principal rivers of Germany—are all navigable for long distances. The Rhine is navigable as high as Strasbourg by big barges, the Elbe as high as Prague in Czechoslovakia, and the Oder as high as Breslau. The Ems and Weser are navigable throughout their length. The importance of the rivers has been greatly enhanced by the construction of inter-connecting navigable canals. The Rhine in its lower course passes through the Dutch territory. To create an opening for the Rhine through the German territory the Dortmund-Ems canal has been constructed. The Rhine-Rhone canal through the Doubs has facilitated German trade with the Mediterranean ports. The Marne-Rhine Canal through the Marne, the tributary of the Seine, has furthered the growth of Franco-German trade. The Oder-Vistula canal through the Netze encouraged trade between Germany and Poland. The Ludwig canal is important as it joins the Rhine through the Main *via* Nuremburg with the Danube, the most important river of Central Europe. The Elbe-Trave canal has greatly promoted the German trade with the Baltic ports. The Mittelland canal is a central highway from the Ruhr coal fields to Magdeburg, the principal sugar-refining centre. Besides, there are the central canals largely to facilitate inland traffic. The Kiel ship canal constructed through the German territory shortens the distance between the Baltic and the south-western ports of Europe and is open to big ocean liners. It is thus evident that the river

system of Germany plays a magnificent part in her inland trade

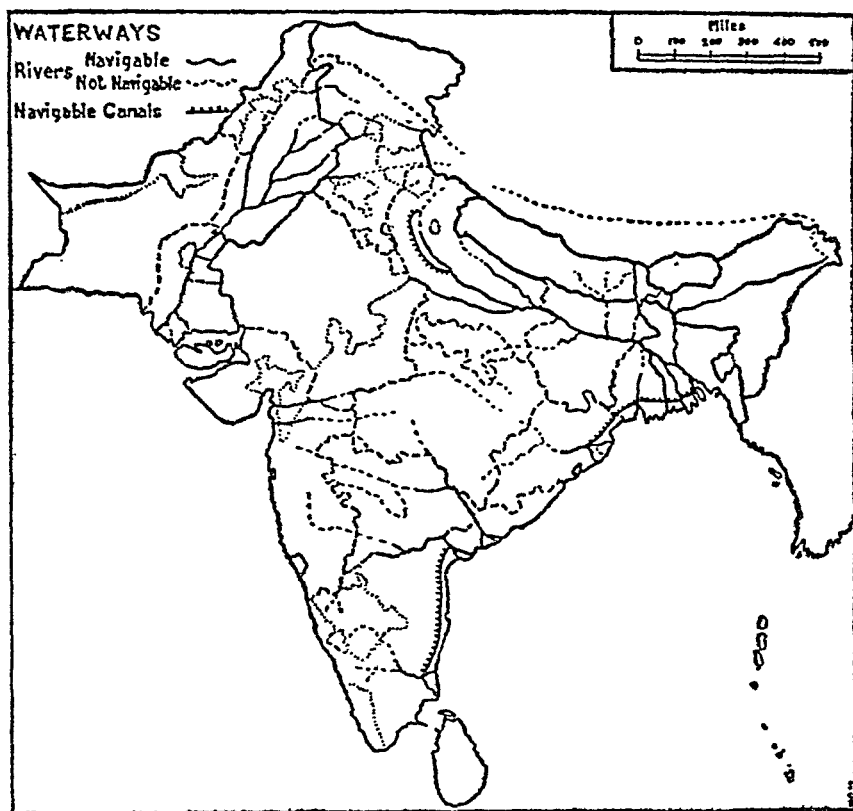
FRANCE—The waterways of France hold a very important place in her inland communication systems. The Seine with Oise, Marne Aube and Yonne, the Loire, the Rhone with the Saone the Garonne and the Dordogne, her principal rivers, are all navigable more or less throughout their lengths. The Seine is navigable by big steamers as high as Paris. The Oise, Marne, Aube and Yonne the tributaries of the Seine, are all navigable for long distances. The Loire is navigable up to Tours. The Rhone is open to big barges upto Lyons. The Garonne and Dordogne are navigable throughout their whole course. To enhance the value of the river system as transporting agencies many navigable canals have been constructed. The Burgundy canal connects the Seine with the Rhone by means of the Yonne and Saone to help the trade between the Atlantic and Mediterranean ports of France. The Canal du Centre connects the Loire with the Rhone through her tributary the Saone. The Canal du Midi connects the Garonne with the Mediterranean Sea and has recently been extended to meet with the Rhone. The Marseilles Rhone canal has been constructed to avoid the sandbanks at the mouth of the Rhone. The Nantes Brest canal has created an opening for the Loire through the Brest port. Reference has already been made about the Rhine Rhone and Rhine Marne canals in connection with the inland navigation system of Germany.

Thus, France does not fall behind Great Britain and Germany so far as inland water transport development is concerned.

U.S.A—The waterways take a great part in transportation of inland traffic in the United States of America. The Mississippi together with its chief tributary the Missouri forms one of the principal arteries of commerce. The Mississippi is navigable as far as St. Paul—a distance of nearly 2000 miles. The Missouri is navigable throughout its length. The Tennessee, Ohio, Kansas, Arkansas and Red, the tributaries of the Mississippi, are all navigable over long distances. The Mississippi river system furnishes over 6,000 miles of navigable waterways. The Hudson on the eastern coast and the Columbia on the Pacific coast are the other two important navigable rivers of U.S.A. The St. Lawrence river and the great lakes of North America provide the finest system of inland navigation in the world. Lake

Superior has been connected with Huron by the Sault St. Marie canals, otherwise known as the Soo canals. The Welland canal has been constructed to avoid the Niagara falls between lake Erie and Ontario. The great lake system affords a waterway over 1,500 miles in length. The Erie canal which connects Lake Ontario with the Hudson river provides easy transit between the Lake ports and New York.

Thus, it is evident that the waterways of the United States play a prominent part in the commercial economy of the country.



Waterways of India

INDIA AND PAKISTAN—India including Pakistan unlike England and Germany, is not very much favoured by nature with rivers which are so vital to the inland transportation system of a country. Undivided India is a subcontinent-like country and consequently her inland

trade is of greater significance to her than her foreign trade. There are, however, about 26 000 miles of navigable water ways in connection with the great river system of Northern India. The Indus, the Ganges and the Brahmaputra are navigable by steamers all the year round for hundreds of miles. The Indus is constantly navigable as high as Dera Ismail Khan in the North West Frontier province, 800 miles inland. Its tributaries, the Chenab and the Sutlej, are open to navigation by small crafts all the year round. The Ganges is navigable as high as Cawnpore. Steamers also can ply in the Gogra, a tributary of the Ganges as far as Faizabad. The Jumna, another tributary of the Ganges, is navigable throughout its length. The Brahmaputra is navigable by steamers as high as Dibrugarh and its tributary, the Surma, is navigable as far inland as Sylhet. The Hooghly is also navigable for a considerable distance. The rivers in the Deccan peninsula, however, are not suitable for navigation purposes since they are mostly rain fed rivers. According to seasons they either flow in torrents or shrivel up into mere strings, making navigation impracticable. The rocky beds and swift currents of rivers like the Narmada and Tapti make them unsuitable for navigation. The Mahanadi, the Godavari and the Krishna are navigable in their upper courses.

On the whole, it can be said that the river system of India, including Pakistan, is definitely inadequate for the development of the inland trade of the country.

OCEAN TRANSPORT—Ocean transport plays the most important part in international trade of the world in modern times. Oceans offer magnificent natural highways of commerce open to all nations. The rights of navigation in the ocean are not reserved to any particular nation. Ocean transport is the cheapest form of transport. The maintenance of ocean highways does not require any capital outlay and even in some cases like sailing ships, motive power is also provided gratis by nature. The inherent advantages of ocean transport have led to the commercial development of countries open to such transport.

In ocean transport mercantile marine ships are of paramount importance. They may be either liners or tramps. Liners are regular steamships which follow fixed routes and call at fixed ports. Their arrivals and departures are scheduled and pre-arranged. They carry the bulk of the cargo and passenger traffic.

of the world. *Tramps*, on the other hand, have no fixed routes or ports of call and their arrivals and departures are not fixed long in advance. They sail whenever they find sufficient cargoes. Sailing ships do not hold any position of importance in modern transport system. Their percentage to the total shipping tonnage of the world is less than 2 per cent. in recent times. Over 50 per cent. of the world's mercantile marine shipping tonnage is owned by Great Britain, U.S.A., Japan and Norway. The relative position of the important countries of the world in the world's shipping tonnage in 1939 and 1951 is given in the following table :—

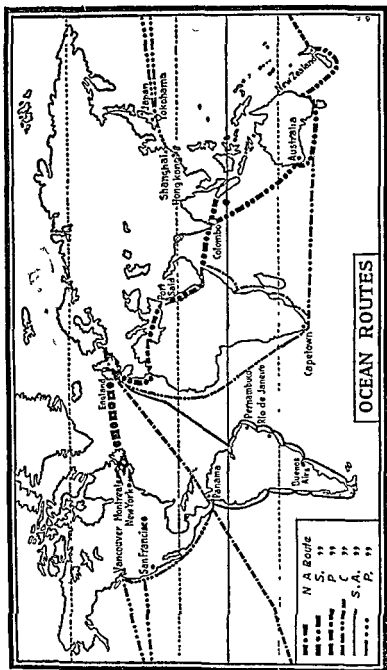
WORLD'S SHIPPING

(World's Total Gross Registered Tonnage in 1951=87,245,000)

	Gross Tonnage.	Percentage owned.	Gross Tonnage.	Percentage owned,
	1939		1951	
Great Britain ...	17,891,134	26.1	18,550,000	21.3
U.S.A ...	8,909,892	13.0	27,331,000	31.3
Japan ...	5,629,845	8.2	2,182,000	2.5
Norway ...	4,833,813	7.1	5,816,000	6.7
Germany ...	4,482,662	6.5	1,031,000	1.2
Italy ...	3,424,804	5.0	2,917,000	3.3
France ...	2,933,933	4.3	3,367,000	3.9
Holland ...	2,969,578	4.3	3,235,000	3.7
Indian Union ...	140,000	0.2	452,000	0.5
Others ...	17,293,339	25.3	22,364,000	25.6
Total...	68,509,000	100.0	87,245,000	100.0

Ocean routes follow certain chartered routes in order to avoid the hazards of the sea. Such routes are primarily determined by great circle routes subject to considerations like availability of cargo traffic, re-fuelling facilities, climate, prevailing winds and ocean currents. The principal ocean-routes are the following :—

- I. The North Atlantic route.
- II. The Suez route.
- III. The Panama route.
- IV. The Cape route.
- V. The South American route.
- VI. The Pacific route.



The North Atlantic route—The most important ocean route at present is the North Atlantic route between North-western Europe and the Eastern coast of North America. Apart from the enormous volume of foreign trade carried on this route, it has also a large volume of passenger traffic. The principal items of trade on this route are wheat, maize, tobacco, raw cotton, live cattle, fresh and canned meat, hides and skins, dairy products, canned and salted fish, petroleum, iron and steel, copper, silver, aluminium, timber, wood pulp, newsprints, various manufactured products from *North America*; and manufactured products like machineries, luxury goods, cement, etc. from *Europe*. The principal European ports serving this route are Liverpool, Glasgow, Southampton, Bristol, Manchester and London in *Great Britain*; Hamburg and Bremen in *Germany*; Amsterdam and Rotterdam in *Holland*; Antwerp in *Belgium*; Le Havre and Cherbourg in *France*; and Lisbon in the *Iberian Peninsula*. The North American ports, on the other hand, are Halifax, Montreal and Quebec in *Canada*; New York, Philadelphia, Boston, New Orleans, Baltimore and Galveston in the *United States*; and St. John in *New Foundland*.

The Suez route—The Suez Canal route ranks next in importance to the North Atlantic route in volume of passenger and cargo traffic. This route emanates from North-western Europe and goes *via* the Mediterranean Sea, the Suez Canal and the Red Sea to the Near Eastern, Middle Eastern and Far Eastern countries and also to East Africa, Australia and New Zealand. The principal items of trade of this route to Europe are wheat, rice, sugar, tea, coffee, oilseeds, rubber, cotton, jute, ~~maize~~ hemp, spices, cinchona, opium, tobacco, indigo, lac, tin, manganese, gold, mica, copper, tungsten, wool, hides and skins, meat, live-stock, ivory, silk, timber, fish, and fish manures. The East-bound trade consists chiefly of manufactured products like cotton piecegoods, woollen goods, machineries, iron and steel products, etc. The principal European ports serving this route are London, Liverpool, Manchester, Glasgow, Southampton, Hull, Bristol and Dover in *Great Britain*; Hamburg, Bremen and Emden in *Germany*; Antwerp and Ostend in *Belgium*; Rotterdam and Amsterdam in *Holland*; Le Havre, Cherbourg, Dunkirk, Bordeaux, Nantes and Marseilles in *France*; Lisbon in *Iberian peninsula*; and Genoa, Naples and Brindisi in *Italy*. A brief

description of the route might be interesting. From London the route goes to Gibraltar, Malta and Port Said, thereafter through the Suez Canal to Suez and then to Aden. From Aden a branch route proceeds to the East African ports of Mombasa, Dar-es-Salaam, Mozambique and Durban. From Aden the main route goes to Colombo direct or *via* Bombay. From Colombo the route branches in several directions: one branch goes to Calcutta, another goes to Fremantle, Melbourne and Sydney in Australia, and then to Wellington or Auckland in New Zealand, a third goes to Singapore and then to Hongkong and Shanghai in China, and a fourth goes to Rangoon. The Suez route is of the highest importance to Great Britain as it provides her with shorter sea routes to India, Burma and her other Eastern colonies and dependencies. It is aptly said to be the life line of the British Empire. Prior to the opening of the Suez Canal in 1869 the sea route to India and the Far East went round the Cape of Good Hope. But the Suez Canal has greatly shortened the distance between the East and the West. The gain in distance *via* the Suez is 4,500 miles from London to Bombay, 2,700 miles from Liverpool to Batavia, 1,000 miles from London to Melbourne, 2,500 miles from New York to Calcutta, and 2,300 miles from New York to Hongkong.

The Suez Canal which joins the Mediterranean Sea with the Red Sea is the biggest ship canal of the world. It is 100 miles long from Port Said to Suez. The minimum depth of the canal is 36 ft and the minimum bottom width is 150 ft. The construction of the canal was begun in 1859 under the guidance of the French Engineer Ferdinand de Lesseps and the canal was open to traffic in November 1869. The canal passes through a level land and unlike the Panama canal has no locks. The Suez Canal is owned by a company and the British Government holds the major shares of the company. Nearly 6,000 ships pass through the canal annually carrying on an average over 30 million tons of cargo and passenger traffic. Over 90 per cent of these ships are British.

The Panama route—The Panama route vies with the Suez route so far as its importance to the world trade is concerned. Like the Suez route, this route too has brought about a profound change in the world trade routes. Prior to its opening in 1914, the only sea route to the Pacific ports of North and South

America from the Atlantic ports was *via* Cape Horn or the Strait of Magellan. The Panama Canal has established a shorter route between the Atlantic and Pacific ports of North and South America. The Panama route is of paramount importance to the countries of North and South America as it has greatly shortened the distance between their Atlantic and Pacific ports. The opening of this canal has resulted in an appreciable increase of trade between these two ports of America. It has also greatly lessened the distance between the Atlantic ports of North America on the one hand and those of Australia, New Zealand, Japan and Northern China on the other. The Panama Canal has helped the rapid development of trade relations between U.S.A and the Far Eastern countries of Japan and China. To European commerce this route is of advantage to the extent that the Pacific ports of North and South America have been brought nearer to those of Europe. The gain in distance *via* the Panama is 5,600 miles from Liverpool to San Francisco; 7,800 miles from New York to San Francisco; 2,500 miles from New York to Wellington (New Zealand). 3,700 miles from New York to Valparaiso, and 2,700 miles from New York to Melbourne (Australia).

A brief description of this route from New York might prove interesting. From New York the route goes to Colon, the Atlantic terminal port of the Panama Canal, and thereafter through the Panama Canal to Panama and Balboa on the Pacific coast. From Balboa the route branches in several directions. One branch goes north and reaches San Francisco or Vancouver. The second goes south and reaches Valparaiso. The third goes to Honolulu (Hawaii Islands) and then to Sydney. The principal items of trade on this route are silk, tea, sugar, hemp, oil-seeds, wool, rubber, nitrate, petroleum, manufactured goods, coal, cotton, metals, machineries, wood and wood-pulp, furs, live stock, wheat, etc.

The Panama Canal is next in importance to the Suez Canal. It is the second largest canal of the world. It is 50 miles long from Colon to Panama. The minimum depth of the canal is 41 feet and the minimum bottom width is 300 feet. The construction of the canal was begun in 1907 and the canal was open to traffic in August, 1914. It passes through a mountainous

country and the engineering difficulties in its construction were many and had been avoided by a series of locks. The Panama Canal is owned by the United States Government. Over 5,000 ships pass through this canal annually carrying on an average over 25 million tons of cargo and passenger traffic. Over 50 per cent of the ships on this route are American.

The Panama Canal is the connecting link between the Atlantic and the Pacific Ocean whereas the Suez is the connecting link between the Atlantic and the Indian Ocean. The Panama primarily serves the continent of America in her trade between her eastern and western ports as well as in her trade with Australia, New Zealand, Japan and Northern China. The Suez, on the other hand, has promoted the trade between the East and the West and serves the continents of Europe, Asia, Africa, Australia and New Zealand. The 'new world' has primarily benefited from the Panama while the 'old world' has benefited from the Suez. The Panama is of importance to Europe mostly for her trade with the western ports of North and South America. The Suez holds its importance to America so far as her trade with the Far Eastern countries south of Hongkong is concerned. The Suez route has some advantages over the Panama route. The Suez route passes through the heart of the world and serves more countries and people than the Panama route. The Suez route is provided with many ports of call for coaling and refuelling purposes but on the Panama route to the East there are few ports of call. The Suez Canal has no lock as against the Panama which has several locks. On the other hand, the Panama has her special advantages. The minimum depth of the Suez Canal is 36 feet and the minimum bottom width is 150 feet and consequently big ocean liners cannot take advantage of the Suez route. The minimum depth of the Panama Canal on the other hand is 41 feet and the minimum bottom width is 300 feet and consequently in spite of many locks big ocean liners can pass through the canal. The Suez Canal is 100 miles long and the transit time in the canal is over 16 hours. The Panama canal on the other hand is 50 miles long and the transit time is nearly 7 hours which ensures plying of warships from the Atlantic Ocean into the Pacific Ocean in a considerably short space of time if necessity so arises. Again another serious draw

back of the Suez Canal is that its canal dues are much higher than those of the Panama Canal.

The Cape Route—Prior to the opening of the Suez Canal in 1869, the Cape route was the only trans-oceanic route from the East to the West. The route was first found out by Vasco da Gama in 1498. It connects North-western Europe with West and South Africa and also provides an alternative route to Australia and New Zealand. The principal items of trade on this route are rubber, cocoa, oil-palm, ivory, gold, diamond, wool, ostrich feathers, hides and skins, copper, maize and fruits to Europe; and manufactured products especially cotton textiles, iron and steel goods, coal, etc. from Europe. The chief European ports serving this route are London, Liverpool, Southampton, Cardiff, Swansea, Antwerp, Le Havre and Lisbon. A brief description of the route might prove interesting. From London the route goes to Madeira, St. Helena, Capetown, Fremantle and Melbourne and then terminates at Sydney.

The South American Route—The South American route radiates from the Atlantic ports of Europe, goes to Madeira, Pernambuco, Rio-de-Janeiro and Santos and then terminates at Buenos Aires. Prior to the opening of the Panama Canal the route extended upto Vancouver. The principal items of trade on this route are coffee, cocoa, cotton, linseed, wheat, meat, wool, hides and skins, live-stock and furniture-wood to Europe; and manufactured products from Europe. The principal European ports serving this route are Liverpool, Manchester, Glasgow, Southampton, Amsterdam, Rotterdam and Lisbon.

The Pacific Route—The Pacific route connects the Pacific ports of U.S.A. and Canada with those of Japan and China. The principal North American ports serving this route are Vancouver and San Francisco and those of Japan and China are Yokohama and Shanghai. The principal items of trade on this route are tea, silk, soyabeans, oil-seeds, manila hemp, petroleum, cotton, tobacco, wheat, rice and manufactured products.

AIRWAYS—The development of air transport has been very striking in recent years. Already there are regular air services between the countries in Europe. The air-routes have also radiated in all directions from the European countries and air services are thus becoming increasingly available to all countries of the world. In air transport there are in use two types of

air vessels—air ships and aeroplanes. The air-ship is lighter than air whereas the aeroplane is heavier than air.

Aeroplanes and airships can now fly almost independently of weather conditions. Arrangements for night flying have been made over long distances. They have attained to a great extent immunity from accidents. Though there have been great developments in size, speed and load carrying capacity of aeroplanes and airships in recent years, they are still unsuited to carry heavy traffic. Their traffic is chiefly limited to speedy and high class passengers and freight traffic. Air mails are now carried in all continents over long distances. It is unlikely that the air transport will ever be able to compete with the railways and ships for the carrying of bulky goods. But for high class passengers for more valuable traffic and for speedy journey, their future seems to be assured. Their usefulness in times of war is very great and the present world war has brought about great improvements in the air services. Air routes are determined to a great extent by climate, wind systems, relief and landing facilities.

Air transport has made a rapid headway in almost all the countries of the world. A detailed description of the air transport systems of the different countries will be given in dealing with their regional geography. A brief survey of the principal trans continental air routes is given here. The principal trans continental air routes are the following —

Imperial Air route to India and Australia

British Air route to South Africa

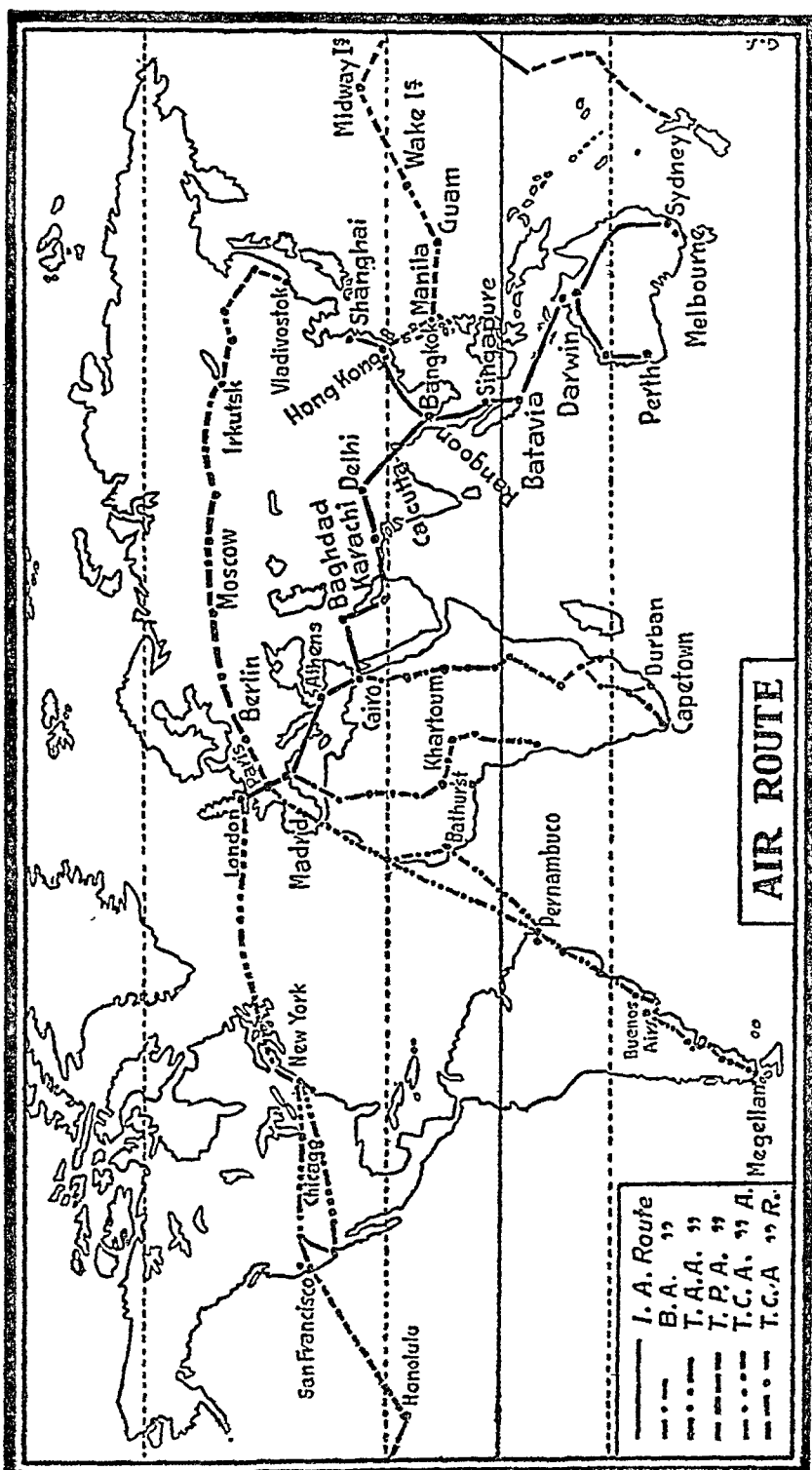
Trans Atlantic Air route

Trans Pacific Air route

Trans continental Air route of America

Trans continental Air route of Russia

Imperial Air route to India and Australia—A regular imperial air service was inaugurated in December, 1931 between Great Britain and Australia. From London the Imperial Air route goes to Paris, Marseilles, Athens, Alexandria, Cairo, Baghdad, Bahrein, Karachi, Jodhpur, Delhi, Allahabad, Calcutta, Akyab, Rangoon, Bangkok, Penang, Singapore, Batavia, Darwin, Brisbane, and Sydney, terminating thereafter at Melbourne. The Dutch K.L.M. line and the French A.F. line also follow more or less the same route to reach their eastern colonial empire.



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प्रश्न में आरम्भ
आरम्भ में मुदाई आरम्भ
वना है।

(a) how many cases of 15 to 20 years old are pending in the Supreme Court;

British Air route to South Africa—The British Air route starts from Southampton goes to Paris Marseilles Athens Alexandria Cairo Wadhalfa Khartoum Nairobi Durban and Port Elizabeth and terminates at Capetown

Trans Atlantic Air route—There is a regular air service route between Europe and South America maintained by France and Germany The German line starts from Berlin goes to Paris and Madrid and then following the Atlantic coast of Africa reaches Bathurst the African terminal port of the line It then goes to Pernambuco in Brazil thereafter terminating at Buenos Aires in Argentina

Trans Pacific Air route—Air services across the Pacific ocean between America and Asia are maintained by the U.S.A From San Francisco the line goes to Honolulu Midway Island Guam and Manila and terminates at Hong Kong

Trans-continental Air routes of America—There are two important trans continental air routes in the U.S.A One line starts from New York and goes to San Francisco via Cleveland Chicago Omaha and Salt Lake city Another line starts from Philadelphia goes to Pittsburg St Louis Kansas and Santa and then terminates at Los Angeles

Trans-continental Air route of Russia—The Trans continental Air route closely follows the Trans Siberian Railway line upto Vladivostok From Moscow the line goes to Vladivostok via Kazan Sverdlovsk Omsk Novo Sibirsk Irkutsk Chita Stryelka and Khabarovsk

In number of air ships owned the U.S.A easily leads over all other countries followed by Germany and France Commercial aviation is a new phase of the air transport development With further advance in aeronautical science and improvements in air ship constructions its future seems to be assured

CHAPTER XII

PORTS AND TOWNS

TOWNS—Towns do not grow accidentally, nor do they spring up haphazardly over the country side. Their origin and growth is a material expression of the activities of the people residing in such areas. They have very many geographical and economic reasons for their growth. In early times presence of drinking water in all seasons of the year and suitable building sites determined in a large measure growth of towns in particular regions. The actual site of London was originally chosen for settlement by flint workers at a very early date for the presence of some springs providing good drinking water. In modern times towns owe their growth to a combination of very many contributory factors.

Towns may be broadly classified as industrial, commercial or route towns, according as their growth is due to industrial, commercial, or route factors. But such a clear-cut classification of towns leads to erroneous conclusions, since in most of the cases, the growth of the town may be due to very many overlapping factors.

GROWTH OF TOWNS—The causes which lead to the growth of a town in a particular locality can be summarised in some such way as follows :—

(1) *Confluence of routes*—It is quite easy to understand that the regions and localities where different routes meet, are likely to grow in importance and become towns. The routes may be either of the *four* types—(i) Land routes, (ii) Railway routes, (iii) Waterway routes and (iv) Air-routes. Towns which have sprung up for the confluence of land routes are Cairo, Vienna, and Delhi; and those for that of railway, waterway and air-routes are Chicago, Winnipeg and Parbatipur; St. Louis, Lyons and Allahabad; and Penang, Gaza and Jodhpur.

(2) *Confluence of different regions*—Towns often grow up at the confluence of hills and plains. All towns are more or less centres of exchange. The converging points of different regions producing different commodities provide the population of these regions common meeting grounds for the mutual exchange of their goods. Milan (Italy), Manipur, etc. have grown into

significance by providing opportunities for exchange of commodities from the mountains with those from the plains

(3) *Strategic positions*—Many towns owe their origin and growth to their strategic and advantageous positions. Quetta guarding the Bolan Pass and Peshawar guarding the Khyber Pass have grown to be important towns as military bases

(4) *Natural wealth*—Presence of raw materials and mineral wealth has a very strong influence in attracting people and causing growth of towns. Narayangunj and Jalpaiguri are important towns for abundant production of jute and tea in their neighbouring regions. Presence of minerals like copper and iron led to the development of Ghatsila and Jamshedpur towns. Johannesburg grew from a small village to be the largest town in South Africa for the occurrence of gold in her neighbouring regions

(5) *Absorbing markets*—Proximity to absorbing markets often leads to the development of otherwise unimportant agricultural and rural areas to grow into important industrial towns. Milwaukee in U.S.A. came to be an important agricultural machinery manufacturing town for its favourable location in the heart of the agricultural regions needing such machineries

(6) *Power resources*—Presence of power resources greatly helps in the origin and growth of towns. Modern industrial development is greatly dependent on power and the principal sources of generating power are coal, petroleum and hydro-electricity. Development of Ranigunj and Itharia, Digboi and Khaur, Siva Samudram and Lonavla are primarily due to the presence of coal, oil and water power

(7) *Change of transport*—Where change in the manner of transport, i.e. in the mode of carriage takes place, or where goods in large quantity break bulk, such places grow quick as commercial towns. Sea ports like Calcutta, Karachi and Bombay are the most outstanding examples of this class of towns

(8) *Health resorts*—Health and pleasure resorts like Madhupur, Darjeeling, Brighton (U.K.) and Miami (U.S.A.) grew up to be important residential towns for their bracing climate and natural sceneries

(9) *Seats of culture*—Centres of education and culture attract people and usually grow into important towns. Familiar examples are Santiniketan and Aligarh in India, and Oxford and Cambridge in England

(10) *Religion*—Religious foundations and holy places attract people, and such places become important towns. Mecca in Arabia, and Banaras and Gaya in India are familiar examples to the point.

(11) *Historical and political factors*—Many towns have grown up for their historical past or for their political significance. Agra and Murshidabad have come to be important towns for their historical past, and political considerations largely led to the growth of capital towns like Tokyo, Bangkok, and Delhi.

PORTS—A port is a connecting link between the land surface and the sea, and a converging point of land routes and ocean routes. In other words, it is a gateway to the land from the sea. In short, it is a convenient place in the land surface for the purpose of loading and unloading of goods carried in ships through ocean routes.

Ports are divided into *four* broad divisions on the basis of their locations. They may be (i) river ports, (ii) bay ports, (iii) estuarine ports, and (iv) canal ports. *River ports* are usually situated at places up to which rivers can be navigated, or where the inducements for trade are great, or at the turning point of such rivers. In short, the development of river ports depends on the navigability of rivers, productivity of hinterlands, favourable location on river banks and facilities for import and export for the neighbouring regions. Narayangunj, Chandpur and Goalundo are some of the important river ports of undivided Bengal. River ports connected with the sea are ultimately turned into important towns. Calcutta furnishes a striking example to this point. It is generally seen that a port at the confluence of two rivers gradually assumes special significance as a trade centre, because it can make the best use of both the rivers so far as internal trade is concerned. Goalundo at the confluence of the Ganges and the Brahmaputra is the best example of this point.

The importance of a river port which does not remain ice-free in winter decreases to a great extent, and this is why the ports on the Ob, Yenisei and Lena in Siberia could not assume much importance. On the other hand, Antwerp on the Schelde is fifty miles away from the estuary, while Hamburg on the Elbe is 70 miles off from the sea, yet due to the navigability of the rivers and their freeness from ice the development of these ports has

been possible. *Bay ports* are usually situated on bays and gulfs that have penetrated far into the interior of the land surface. They provide safe anchorage to the ocean going ships. Familiar instances are Surat and Cambay in India and Boston in the U.S.A. *Estuarine ports* are situated at the head of the estuaries i.e. the tidal mouths of the rivers. Such ports are at an advantage in communicating with their hinterlands. Calcutta and Chittagong are the estuarine ports of undivided India. Such ports suffer a serious handicap since they are silted up occasionally and require constant dredging to keep them serviceable. *Canal ports* are all such ports which have acquired importance due to the construction of the canal. Manchester and Kiel have come to be major ports of the world for the construction of the Manchester and Kiel ship canals. Ports Said and Suez have grown to be important ports for the construction of the Suez Canal.

Sea ports also can be classified on the basis of the nature of trade handled into (i) *import ports* (ii) *export ports* and (iii) *entrepots*. But such classification is in the nature of a guide rather than a clear cut division. When some ports are predominantly engaged in import trade they are said to be import ports as against the export ports which are mostly engaged in export trade. Examples of the import ports are Archangel (Russia) and Boston (U.S.A.) and those of the export ports are Odessa (Russia) and Mocha (Arabia). *Entrepots* are transit trade ports. They import commodities for the purpose of re-exporting them to their consuming markets. They facilitate importation of commodities from their producing regions and their distribution among the consuming markets. They act somewhat as commercial go-between. All commodities do not lend themselves to this method of distribution. Those commodities which possess characteristic virtues of durability and portability lend to such form of entrepot trade. Spices, silk, tea, coffee and drugs are consumed in such small quantities by the European countries that it is convenient and economical for them to import them in bulk from tropical countries to some convenient European ports from which they are distributed in small lots to their destinations. London is the European entrepot trade port of Indian tea and Hamburg serves as the entrepot for Scandinavia, Baltic States and Low countries. Aden, Singapore, Hongkong, Colombo and Shanghai are the important entrepots.

of the East. The trade routes of America, North-western Europe, the Mediterranean and Far Eastern ports meet together at Aden. This has made Aden a suitable coaling station and a favourable entrepot. As an entrepot between the East and the West, Colombo has acquired great importance. The importance of Singapore is attributed to its position as a centre for collection of the commercial products of the surrounding islands and their distribution throughout the Malaya Peninsula.

The essential requirements for the transformation of a port into an entrepot are (i) location in the heart of different trade routes of the world, (ii) direct communication between the producing and consuming centres and also (iii) the high price, portability and durability of the commodities handled. The distance between the producing and consuming countries and also facilities for transport go to determine the development of an entrepot.

Ports, again, may be classified as natural or artificial ports. Natural ports are sufficiently enclosed by their topographical features to provide protection against violent winds and strong ocean-currents. They are located by the side of deep seas spacious enough to allow even big ocean-liners to come and touch the port. Bombay, Liverpool, Sydney and San Francisco are excellent natural ports. Where, however, topographical features are unfavourable, artificial ports are built to provide safe anchorage to ships and vessels. Where the neighbouring seas are shallow or large silts are deposited on the mouth of the rivers, extensive dredging is required at frequent intervals and large sums of money are to be spent for the same. Calcutta located at the mouth of the river Hooghly requires constant dredging to keep it a serviceable port throughout the year. Again breakwaters are to be used so as to break up and divert violent waves from disturbing the water surface within the port areas so that ships can lie there in safe anchorage. Madras is kept a port by extensive use of breakwaters and dredges which make the port charges in the port to be high.

GROWTH OF PORTS—Factors which are said to contribute to the growth of a port in a particular locality are many and can be conveniently classified under *two* broad heads—(i) Sea-factors and (ii) Land-factors. Sea-factors, i.e., factors pertaining to the sea are grouped under *five* sub-heads as follows:—

(i) *Accessibility*—The sea should be deep enough so as to allow big ocean liners to come and touch the port. In these days of big ships and vessels sufficient depth of the neighbouring sea is a pre condition of growth of an important port. Sydney, London, Bombay, Karachi, San Francisco and New York are deep sea ports.

(ii) *Sufficient width*—The sea should be wide enough to accommodate very many ships at a time and to enable them to ply and take their turn at ease. For this facility bay and gulf ports are ideal. Boston, Bordeaux, Marseilles and Genoa are the outstanding examples of such ports.

(iii) *Freeness from ice*—The sea should be free from ice and ice-bergs all the year round. The whole northern coast of Russia remains ice covered for the greater part of the year and hence good ports have not developed in the northern coast of Russia. Port Nelson in the Hudson Bay of Canada is a seasonal port serviceable during the ice free months of the summer.

(iv) *Freeness from waves and storms*—The sea bed should be sufficiently enclosed by geographical features so as to provide sufficient shelter and protection to the ships at anchor against violent winds and ocean currents.

(v) *Freeness from reefs and shoals*—The bed should be free from disturbances like reefs and shoals. Their presence often makes navigation in such seas precarious and risky.

Land factors i.e. factors pertaining to the land refer to (i) accommodation and (ii) shelter. For development of ports of sufficient magnitude and importance there should be sufficient accommodation for the construction of docks, wharves, warehouses etc. Docks are places where sundry repairs to ships damaged in the course of sea transit are done and wharves refer to platforms where ships will anchor for purposes of loading and unloading. Warehouses are godowns where goods prior to loading and after unloading are stored.

The development of a port essentially depends on the extent, productiveness, density of population, natural resources, transport facilities and the purchasing capacity of the inhabitants of its hinterland. The hinterland of a port refers to the region which is served by it. It relates to the region to which the port acts as an outlet for the overseas trade. Hinterlands may be contributory or distributory or both. A *contributory hinterland* is concerned

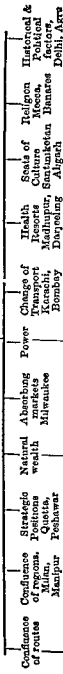
chiefly in providing merchandise for exports. In other words, a hinterland is said to be contributory when it produces food-stuff, raw materials, or manufactured products for purpose of exports. A *distributory hinterland*, on the other hand, is concerned chiefly in facilitating importation of the requirements of its inhabitants. They may be food, raw materials and luxuries of life. But such a classification of hinterlands is illusory as no hinterland is exclusively importing or exporting as to be an out-and-out distributory or contributory hinterland.

It is a mere truism when it is said that "the importance of a port depends mainly upon the extent and productiveness of its hinterland." A port will not develop, however, conducive and favourable other factors might be, unless it is backed by a densely populated and resourceful hinterland. The hinterlands must possess inducements for overseas trade. Equatorial Africa has developed very few ports since it is sparsely populated and has very little to offer for purposes of overseas trade. On the other hand, Calcutta has grown to be the first port of India in spite of the fact that large sums of money are to be spent regularly for dredging purposes, because Calcutta has a very rich, resourceful, productive and densely populated hinterland spreading over the Indo-Gangetic plain. Karachi, connected with the Punjab and Sind by railways and waterways, handles the overseas trade of surplus wheat of these two places, while cotton and other agricultural products of the entire Bombay state, Saurashtra, Berar and Madhya Pradesh are carried by rail to Bombay port for export to foreign countries. New York is linked up by rail with the towns on the east coast and also with Duluth in the Lake regions (which thus form an extensive hinterland) and the development of New York is accounted for by the vast size of its hinterland. Again communication facilities of a port largely determine the extent of its hinterland as they bring remote regions in touch with the port. Dense population, rich varied natural resources and well-developed communication systems contribute greatly to the development of a good port. It may be interesting to note that the importance of seaports is largely reflected by the amount and value of goods handled by such ports.

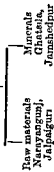
The hinterlands of different ports situated in close neighbourhood may overlap. The hinterlands of Navanagar, Okha, Porbandar, Diu, Cambay, Broach, Surat and Daman on the western

CONDITIONS OF GROWTH OF TOWNS AND PORTS

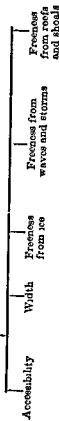
Towns



Ports



Sea factors



Land factors



coast of India are more or less the same. Their relative importance will depend upon their respective trading facilities such as low freight and port charges, etc.

MAJOR PORTS

KARACHI is the third largest port of undivided India, and enjoys the advantage of being the nearest Indian port to Europe. Situated on a bay west of the mouth of the Indus it has been provided with a splendid natural harbour. It has an extensive hinterland extending over Sind, the Punjab, N.W.F.P., Kashmir, Beluchistan and Afghanistan. This hinterland, with its development of wheat cultivation, has made Karachi the largest wheat port in undivided India. It is served by the North-Western Railway which taps the wheat-growing regions. The chief exports are wheat, cotton, oil-seeds, wool, hides and skins, etc. The imports consist of cotton and woollen piece-goods, sugar, iron and steel, chemicals, etc. Karachi is the capital and the largest port of the Dominion of Pakistan.

BOMBAY, the second city in the Indian Union, is the most important port on the west coast of India and its magnificent geographical position is responsible for its rapid growth. Its situation on an island of the same name, gives it an extensive sea front and the facilities of a natural harbour. It is on the direct route to Europe and Africa. The harbour of Bombay is 10 miles long and 6 miles wide, and is possible only due to the natural inlet. It has got a very rich and fertile hinterland which extends from Hyderabad in the south to Delhi in the north and includes Bombay, Baroda, Madhya Bharat, and western U.P. It is connected with Gujrat and Northern India by the Western Railway; and with the Gangetic plains, Madhya Pradesh, West Bengal and the Deccan by the Central Railway thus giving it a wide scope for the building up of its export and import trade. It carries on a considerable collecting and distributing trade with the coastal ports of the Bombay State and Karachi. "There is also a large pilgrim traffic to the Hedjaz and trade with the Persian gulf ports in which Indian merchants take a preponderating part." In spite of its natural advantage in situation, Bombay has serious deficiency in the absence of any coal-field in its neighbourhood and hence it has to depend on coal imported from Wales and South Africa;

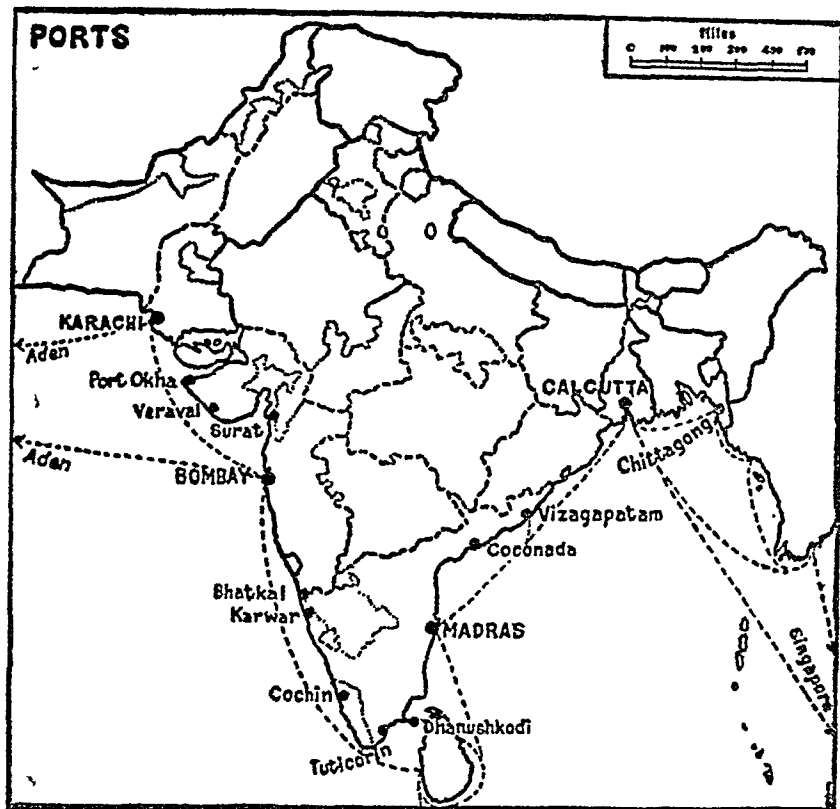
but at present with the development of her hydro-electric power resources, it is now in a position to utilise cheap electric energy for its industrial development

The principal commodity which comprises over 50% of the export trade of Bombay is cotton either in raw condition or after being manufactured into yarns and manufactured goods. Other exports are cotton seed hides and skins manganese, linseed sesamum etc. Its imports are the same as those of Calcutta and include cotton piecegoods hardware machinery, chemicals railway materials petroleum and coal, etc.

MADRAS located some 1000 miles south west of Calcutta, is the most important port on the Coromandel coast. The surf beaten shallow coast line provided little scope for its development. Until an artificial harbour was constructed, it had very little significance as a port. Constant dredging operations are required to keep it navigable. Its hinterlands extend over the whole of the Eastern Deccan and the different parts of Northern India. It is connected by the Southern Railway and the Eastern Railway. The principal exports are oilseeds, hides and skins leather raw cotton coffee tea tobacco spices, etc. and the imports consist of cotton manufactures metals iron and steel goods machinery chemicals paper etc.

Unlike Karachi Bombay and Madras CALCUTTA is a river port. It is the largest city in Indian Union. It is situated on the left bank of the Hooghly some 80 miles from the sea and is the foremost port in India for both imports and exports. The port extends from Cossapore to Budge Budge and is served by the Eastern Railway. It is also served by numerous waterways and canals which directly connect it with the interior. The port, however, suffers from one serious handicap. Being a river port it gets, unless otherwise provided periodically silted up. The river approaches are, therefore, to be kept free by constant dredging and the river has to be lighted up to make night navigation possible. In spite of these natural handicaps Calcutta is very well situated for import and export trade as it commands a very extensive hinterland spreading over West Bengal, Bihar, Assam, U.P. Orissa, Eastern Punjab, and Madhya Pradesh. The port is a natural outlet for the great jute tea coal iron and manganese producing regions of India and nearly the whole of the sea borne trade of North eastern India passes through it. The fact that

greater Calcutta is the greatest industrial region in India, has added new significance to the port. The important industries in Calcutta and her neighbouring regions are jute, cotton, paper, coal, iron and steel, sugar, match, etc.



Major Ports of India

The principal commodity which comprises over 50% of the export trade of Calcutta is jute, either in raw condition or after being manufactured into gunny cloth, gunny bags and hessians. Other exports are tea, lac, oilseeds, coal, manganese, mica, iron, raw hides and skins, etc. Its imports are cotton goods, petroleum, salt, metals, hardwares, machinery, motor cars, chemicals, paper, liquor, Burma rice and timber, etc.

RANGOON is situated some 20 miles away from the sea on the Rangoon river and is the chief port of Burma, handling over 80% of the foreign trade of the country. It has an extensive hinterland extending over the whole of the fertile valley of the

Irrawaddy It is well served both by railways and waterways. The line directly serving Rangoon is the Burma Railway which connects it with the interior regions of the Irrawaddy and Sittang Valleys. Owing to its position at the head of an estuary it can conveniently receive the products of the interior by water routes as well. Rangoon is not only the chief port of Burma but it is also the headquarters of the Government, the railways and all other large business. The chief exports are rice, timber, tobacco, oil, paraffin, wax, cotton, metallic ores, hides and skins, etc. Its imports consist of cotton and woollen manufactures, hardware, machinery, sugar, coal, chemicals, cement, etc.

ADEN situated in south west Arabia is a magnificent natural port. It is said to be the gateway to the Indian Ocean. Its importance has been greatly enhanced by the opening of the Suez Canal which increased her entrepot trade with Europe, Asia and Africa to a great extent. It is a British colony and has great importance as a naval base guarding the Suez route. It is also an important coaling station.

COLOMBO the capital and chief port of Ceylon is situated on the south west coast of the island. It enjoys a virtual monopoly of the foreign trade of the country. It is an artificial port. Its great importance has been primarily due to its advantageous location with reference to the transcontinental oceanic highway between the East and the West. It is also the centre of the Ceylonese railway system. Its hinterland extends over the whole of Ceylon. Besides it is an important coaling and fuelling station and an entrepot trade centre. Its principal exports are tea, rubber, copra, corn and coconut oil and its chief imports are rice, petroleum, textile goods, coal, iron and steel goods, sugar, etc.

SINGAPORE is situated on an island of the same name at the southern end of the Malaya Peninsula. It is the capital and the chief port of the Straits Settlements. It is a magnificent natural harbour and commands a very large volume of entrepot trade. It is rightly said to be the gateway of the East. All the important sea routes to the East from the West converge at Singapore and thereafter radiate in different directions. It is an important air route station and also a British naval base. Its principal exports are rubber, tin, copra,

pineapples, spices, cinchona, etc. and its imports include iron and steel, textile goods, petroleum, machinery, hardware, etc.

HONGKONG is an island situated on the mouth of the Sikiang. It is a British colony and an important naval and military station. Its chief city is Victoria. It has a deep and commodious natural harbour on the northern side of the island. It acts as the principal collecting and distributing centre for the whole of Southern China. Hongkong is a free port and carries on an extensive entrepot trade for the Far Eastern countries. Its principal exports are rice, sugar, tea, cotton, metals and tobacco and its imports consist of textile goods, iron and steel, oils and fats, chemicals, etc.

SHANGHAI is the most important port of Northern China. Situated on a tidal creek near the mouth of the Yang-tse-kiang, it serves a rich, extensive and densely populated hinterland spreading over the whole Yang-tse-kiang basin. Its importance has been greatly enhanced by the absence of any good port in the whole Northern China. One serious handicap from which Shanghai is to suffer is that its harbour is not very deep and, hence, big steamers and ocean-liners have to anchor at some distance from the shore. Its principal exports comprise silk, tea, cotton, soyabeans, metals and ores, etc. and its chief imports include textiles, iron and steel goods, kerosene, hardware, machinery, chemicals, etc.

YOKOHAMA is the principal port of Japan doing more than half of her foreign trade. It has a deep and spacious harbour accessible to the biggest ocean-liners. It is the outport of Tokyo. Its principal exports are silk and silk yarns, electrical machinery, rayon, chemicals, porcelain, glass, etc. Its imports are food-stuff, iron and steel, cotton, wool, raw silk, etc.

SYDNEY, the capital of New South Wales, is the chief port of Australia. It deals with over 40 per cent. of the foreign trade of the country. It has an excellent natural harbour, possibly the best in the world. Its hinterland is very productive and recent developments in communication have made the port easily accessible. Its principal exports are wheat, meat, wool, dairy products, fruits, etc. and the imports consist of manufactured products from Europe and U.S.A. Coal and iron, found, in its neighbourhood, helped development of many manufacturing industries.

MELBOURNE, the capital of Victoria, is second to Sydney in importance as a port. It exports a great variety of products such as wool, meat, wheat dairy products, gold, etc. It has considerable trade with the neighbouring islands of Tasmania and New Zealand. It is also an important manufacturing centre.

ADELAIDE situated on the Gulf of St Vincent is the capital and chief port of South Australia. It has extensive agricultural hinterland and is the principal wheat port of Australia. Wheat, flour silver copper meat and fruits are its principal exports.

BRISBANE, situated on the mouth of the Brisbane river, is the capital and chief port of Queensland. It is on the eastern coast of Australia. Its exports comprise wool, meat, hides and skins, dairy products, tin copper, etc. It is also an important industrial centre.

NEW YORK situated at the mouth of the Hudson river on the Atlantic coast, is the chief port and manufacturing centre of the United States of America. It is the second largest city in the world. Over 50 per cent of the total foreign trade of the country passes through it. The reasons accounting for the importance of New York as a port are (i) excellent natural harbour conditions, (ii) rich and extensive hinterland (iii) easy accessibility both by railways and waterways, and (iv) nearness to Europe. Its hinterland extends over the most prosperous and densely populated regions of the north-eastern coast of the United States. The port is the natural outlet for all kinds of manufactured products of the interior. Its principal imports comprise of food stuff and raw materials for manufacture.

BOSTON is a fine bay port serving the New England States. It is the nearest port to Europe and is the natural outlet for the products of the industrial districts of New England. It is the principal wool market of the United States. Cotton, wool, hides and skins are imported from the neighbouring regions to feed the manufacturing industries of the New England States. The port is open all the year round.

PHILADELPHIA, situated at the mouth of the Delaware, is another important port on the Atlantic coast of the United States. It has grown to be an important centre for shipbuilding industry. Its exports and imports are like those of New York. Its easy access to coal, iron, and petroleum has led to the develop-

ment of different industries like sugar-refining, textiles, leather goods, locomotives, etc.

NEW ORLEANS, situated on the mouth of the Mississippi, is the second largest port of the United States. It is the natural outlet of the Mississippi-Missouri basin and exports cotton, wheat, petroleum, maize, timber, etc. Its imports are coffee, sugar, bananas, etc. It is the largest cotton port of the world. The easy communication facilities provided by the railroads and rivers, and rich and extensive hinterland added significance to this port.

GALVESTON, situated on the Gulf of Mexico, is another important cotton port of the United States. It has been raised to the position of a respectable port by the construction of a navigable channel across the bar at its entrance. It exports cotton, wheat, flour, meat, etc. Its hinterland extends over the principal cotton producing regions of the United States.

SAN FRANCISCO, the capital of California, is the principal Pacific coast port of the United States of America. Its importance was greatly enhanced by the opening of the Panama Canal which provides increasing facilities for her to trade with the Atlantic ports of the Americas. It is the converging point of the trans-continental routes from the East. It has an extensive foreign trade with the Far Eastern countries and Australia in tea, silk, spices, pearls and sugar. Its hinterland includes the whole of California. The principal exports are gold, Mediterranean fruits, wheat, oil, etc. and its principal imports are manufactured products from eastern parts of America, and products from the Far Eastern countries.

SEATTLE is another important Pacific coast port of the United States and is situated farther north on Puget Sound. It has a good natural harbour. Its hinterland is not very extensive. Its chief exports are timber, wheat, fish, fruits, etc.

LOS ANGELES is another important port serving the fertile regions of California. Due to the development of petroleum production in the neighbouring regions, it has acquired greater importance than San Francisco in recent years. Fruit packing and the film industry contribute greatly to the trade of this port. It is an artificial port and is situated 26 miles off from the sea.

MONTREAL is the principal port and the largest town of Canada. It is situated on the St. Lawrence and is accessible to

the big ocean liners due to the deepening of its mouth. It is the natural outlet for the agricultural and mineral belt of Canada. The only handicap from which it suffers is the closing of the port by ice during the winter months. Its principal exports are wheat, maize, nickel, silver and copper.

HALIFAX, on the the east coast of Nova Scotia, is an all the-year round port of Canada. It is a safe and commodious natural harbour and exports principally the rich mineral resources of Nova Scotia. Due to its freeness from ice, it handles most of the winter trade of Montreal. It is well connected by railway system with the interior.

VANCOUVER, situated in British Columbia, is the most important Pacific coast port of Canada. It is the western terminus of the Canadian trans-continental railways and is also the natural outlet for the products of the western prairie regions. It acts as a gateway for Canada's trade with the Far East and Australia. Its principal exports are wheat, timber, coal, gold, etc. Unlike Montreal, it is open all the year round.

BUENOS AIRES, the capital of Argentina, is the chief seaport of South America. The neighbouring sea is very shallow and hence constant dredging operations are necessary to keep it open for big ocean liners. Its hinterland extends over the whole of the rich agricultural and pastoral regions of Argentina. It is connected with the interior by a network of railways. Its exports reflect the products of the Argentine republic and comprise wheat, meat and meat extracts, wool, hides and skins, dairy products, linseed, maize, etc.

RIO DE-JANEIRO is the capital and chief port of Brazil. It is a natural harbour. It is well served by a network of railways. Its principal exports are coffee, cocoa, rubber, tobacco, hides and skins, etc. and its imports comprise manufactured products and food stuffs.

MONTEVIDEO, situated on the north of the Plate estuary, is the capital and chief port of Uruguay. It exports wool, meat, dairy products, hides and skins, wheat, etc., and imports coal, oil, iron and steel, machinery, etc.

VALPARAISO, the principal port of Chile, is the most important Pacific coast port of South America. It is situated on a fine bay. It exports copper, silver, nitrates, wool, wheat and fruits and its imports include manufactured products mostly from U.S.A.

LONDON, the chief port of the British Isles, is situated 55 miles off from the sea on the head of the Thames estuary. It is the biggest city and largest sea-port of the world. Its facing towards the mouths of the Schelde and Rhine, the two high-roads of European commerce, has provided it with an excellent opportunity to trade with continental Europe. It controls as much as 35 per cent. of the total foreign trade of Great Britain. It is a great entrepot trade centre as well, controlling much of the British, foreign and colonial trade with the Baltic and Mediterranean ports. The principal commodities are tea, coffee, rubber, tobacco and other tropical products from the East; wool, meat, dairy products, hides and skins from Australia, New Zealand and Argentina; and wheat, maize and cotton from Canada and U.S.A. It is the capital and chief railway centre for the British Isles.

LIVERPOOL, situated at the mouth of the Mersey, is the second largest port of the British Isles. It is connected with Manchester by means of famous Liverpool-Manchester ship canal. It is the natural outlet for the products of the Lancashire cotton textile industry. It also exports products of the Yorkshire and "Mid-Country" regions. The principal imports comprise raw cotton, wheat, meat, fruits, wood-pulp and petroleum. Liverpool is pre-eminently the port for trade with America.

HAMBURG, situated on the mouth of the Elbe, is the most important port of Germany and controls over 50 per cent. of the foreign trade of the country. It is a riverine port situated at a distance of over 70 miles from the open sea. It imports coffee, tea, cocoa, tobacco, silk, jute and petroleum. Its exports include manufactured products, sugar, salt, chemicals, etc. Hamburg is an important entrepot for the whole of Western Europe.

MARSEILLES is the chief port of France. It is situated to the east of the Rhone mouth at the head of the Gulf of Lyons. Its importance has been greatly enhanced by the opening of the Suez Canal. It is the natural outlet for the products of the rich Rhone basin. The trade of Marseilles is chiefly with Northern Africa, Mediterranean countries and the Far East. Its imports consist chiefly of raw silk, palm oil, oil-seeds, hides and skins, iron ores, etc. and its exports comprise silk goods, soap, scents and toilet goods, chemicals and motor cars.

CAPE TOWN, the capital of the Cape of Good Hope province is the most important port and the second largest city of South Africa. It is a port of call on the Cape route. It has an excellent harbour. Its principal exports are diamond, gold, wool, ostrich feathers and fruits.

DURBAN is the chief port of Natal and the second largest port of South Africa. It is the natural outlet for the products of the mining districts of Transvaal, Orange Free State and Natal. Its principal exports are coal, gold, copper, hides and skins etc.

ALEXANDRIA, situated on the north west fringe of the Nile Delta, is the principal sea port of Egypt. It handles over 80 per cent of the foreign trade of the country. Its hinterland extends over the whole of the Nile basin. The principal exports are cotton, cotton seeds, wheat, rice and onion.

CHAPTER XIII

AFRICA

Introduction—Africa, popularly known as the “Dark Continent,” is the second largest of all the continents in the world, being next to Asia in size. Her area is three times the size of Europe and six times that of undivided India. The continent has an area over 11 million sq. miles and a population over 150 millions. Originally Africa was joined to the continent of Eurasia by a narrow neck of land known as the Isthmus of Suez, but the opening of the Suez Canal in 1869 separated the two continents.

With the exception of the coastal plains covering an area extending between 50 to 200 miles from the coast the whole continent is a vast plateau. This plateau gradually becomes higher from the north and stretches far towards south and south-east and then gradually becoming lower merges with the coastal low lands. The region extending from Suakin on the Red Sea to Loanda on the Atlantic Ocean is a plateau which is low in some places and high in others, but everywhere the height exceeds 1,500 ft. North of this plateau is the Abyssinian plateau and in this plateau lie the important mountain peaks of Africa, such as Ruwenzori, Mt. Kenya, Kilimanzaro etc. In the south the location of the Drakensberge mountain ranges is responsible for the formation of the Kalahari desert. The height of the plateau covering the entire North-west Africa ranges between 600 and 1,500 ft. where the Sahara desert as well as the mountain ranges, such as Atlas, Tibesti, Cameroon, etc. are the special features.

The continent of Africa lies between latitudes 37° N. to 35° S. and longitudes 20° W. to 52° E. The equator almost bisects Africa. Consequently, from May to October the northern part of the continent enjoys summer while in the southern part winter prevails. On the other hand, from November to April there is winter in the northern part and summer in the south. The greater part of the continent lying in the tropics, extreme temperature should have prevailed more or less everywhere, but the climate varies in different regions according to variation in rainfall. For instance,

due to extremely poor rainfall the Sahara area has an extreme climate, but the intensity of heat is less in Sudan, Guinea Coast or Abyssinia due to sufficient rainfall in summer and also on account of high altitude. The climate of the equatorial region is always wet and hot. In South Africa the temperature is much lower in the east coast due to rainfall and in the west coast on account of the proximity of the cold Benguala current. The climate of the coastal areas is very much unhealthy. In the Kalahari desert regions of South Africa the climate is extreme but that of the highlands is milder and healthier. The coastal regions in the north west and south west parts of the continent enjoy Mediterranean type of climate.

The variation in climate accounts for the uneven distribution of population. In proportion to size the density of population per square mile, on an average, is only 13. The density of population in the Nile basin is 250, that in the Congo basin, Guinea Coast and Atlas regions 25 to 50 and that in desert areas less than 2.

As on human settlement, influence of climatic variations is noticeable on natural vegetation too. The heavy rainfall throughout the year in the equatorial calm belt accounts for the vast dense forests in Central Africa (Guinea Coast and Congo basin). In the regions north and south of the equator the gradual decrease in rainfall is responsible for Savanas and Grasslands. The rainless Sahara is wholly devoid of any vegetation but in the Kalahari desert (where rainfall is scarce) has patches of green vegetation here and there. Due to winter rainfall Mediterranean fruits and crops grow in the north west and south west Africa. Egypt in the Sahara area has become rich in agricultural resources on account of the monsoonal rainfall in Abyssinia region.

Compared to the vast expanse of the continent the rivers are very few in number and with the exception of the Nile the others have practically no importance from commercial point of view. THE NILE, the longest river of Africa is 4,000 miles long, but it is freely serviceable only for 800 miles in the lower course, the upper course having cataracts between Khartoum and Aswan. Still, as a fertilising and transportation agent its importance cannot be overshadowed by any of the other rivers of Africa. THE CONGO is a very important river of the Equatorial Africa. It passes through the dense forests of

Belgian Congo. Although it is navigable for 1,000 miles it is not very highly advantageous for navigation purposes, since its course is full of cataracts and falls as a result of its passage through the mountainous regions of the west coast and as such it has no direct communication with the sea. The relief of the region, however, through which it passes amply justifies the possibilities of hydro-electricity in this region, but due to the sparse and backward population of Belgian Congo it has not been taken advantage of in that respect for electrification of the country. The swampy and lagoon-like delta of the NIGER, the rapids and falls of the ZAMBESI, and absence of direct route to the sea in the case of the ORANGE make these rivers unsuitable for continuous navigation. The LIMPOPO rises in the High Veld and flows in a great curve into the Indian Ocean. Except during the rains the upper parts are dry, and useless for navigation. In the mud at the bottom lie the crocodiles which give the river its name—the *Crocodile river*.

Although the second largest continent, the country is of least significance so far as its contribution to international commerce is concerned. Economically, socially and politically Africa is the most backward of the continents. The *causes for its economic backwardness* can be attributed to the following:—

(1) *Hostile climate*—The location of the continent mostly in the tropical and equatorial zone speaks for its unfavourable climatic conditions which greatly hinder the economic and commercial exploitation of the country.

(2) *Inadequate rainfall*—The natural unproductiveness of the continent is in a large measure attributable to the want of rain. The surface of Africa, like that of Spain, is made up mainly of plateaus with bordering mountains, so that the interior is in most parts reached only by winds that have been deprived of the greater portion of their moisture. The barrenness of the greater part of Africa is therefore due to the absence of adequate amount of rainfall.

(3) *Poor soil*—Another natural handicap from which the continent of Africa suffers is poor soil. For vegetation life fertile soil is an essential pre-requisite. The barren and unproductive soil of the country very much affects its agricultural development.

(4) *Absence of mineral resources*—Barring South Africa, the whole of the continent is sadly lacking in mineral resources,

miles. Air service in recent years have developed satisfactorily, which provide an efficient means of communication.

There are *four* main ports in the Union of South Africa—Durban, Cape Town, Port Elizabeth and East London. *Durban* is the chief port of Natal and the second largest port of South Africa. It is the natural outlet for the products of the mining districts of Transvaal, Orange Free State and Natal. Its principal exports are coal, gold, copper, hides and skins, etc. *Cape Town*, the capital of the Cape of Good Hope province, is the most important port and the second largest city of South Africa. It is a port of call on the Cape route. It has an excellent harbour. Its principal exports are diamond, gold, wool, ostrich feathers and fruits. *Port Elizabeth* situated on the south coast exports wool, hides and skins, ostrich feathers, grain, etc. *East London*, situated at the mouth of the Buffalo river, is another port of Cape of Good Hope province. It is the leading wool port.

The principal items of export of the Union are gold, diamond, wool, maize, wheat, hides and skins, bark, coal and butter. Food and drink, electrical goods, oil, hardware, chemicals and textiles constitute the chief imports. Major portion of the total trade is carried on with the United Kingdom.

Anglo-Egyptian Sudan covers an area of 967,500 sq. miles with a population of 8,764,000. The wide variation in climatic conditions in different parts of the country accounts for the production of different kinds of agricultural crops in different regions. The southern part of the country is forested and rubber and timber constitute the principal forest products. In the vast grassland of the middle portion cattle-rearing and agriculture are the principal occupation of the people. The chief agricultural products of this area are cotton, maize, millet, tobacco, rubber, coffee and gum arabic. Cotton is undoubtedly the most important crop of the country, as it covers nearly three-fourths of the total exports of Sudan. The Sudan is the chief source of the world's supply of gum arabic. Gold is also found. Ivory is obtained from many elephants found in the south. The internal communication is maintained by the river Nile, by animal transport, and also by railway lines connecting Haifa and Khartum *via* Abu-Hamed on one hand and Khartum, and Port Sudan on the other.

Cotton, cotton seed, gum arabic, millet, hides and skins and gold are exported from Anglo-Egyptian Sudan. The country

imports cotton textiles machinery sugar iron and steel goods chemicals motor cars cycles tobacco flour coal gunny bags and cement Nearly half of the total trade of the country is made with the United Kingdom

British East Africa includes a long stretch of territory in the East comprising British Somaliland Tanganyika Kenya Uganda Nyasaland and the adjacent islands of Zanzibar and Pemba The whole of British East Africa is an agricultural and pastoral region There is very little mineral wealth

British Somaliland lies between Eritrea and Italian Somaliland Agriculture is practised and barley and maize are grown but these are mostly consumed locally British Somaliland is strategically important since it guards the Suez route to India Cattle rearing is important here *Berbera* is the capital and chief port

Uganda is a high plateau The temperature is moderate with slight variation throughout the year Agriculture is the basic industry and the principal occupation of the people Cotton is the chief agricultural crop Uganda is next to India in the production of cotton in the British Commonwealth and its rapid development within a short period of time is due to the development of transport system of the country Uganda also produces cotton seed tea coffee tobacco sugarcane, rubber and ground nuts Gold and tin are mined to a certain extent here Railways waterways roads and airways have developed satisfactorily and these have maintained the communication in line with the actual requirements of the country *Entebbe* situated on the north western shore of Lake Victoria is the administrative capital and important commercial centre

Kenya is a large tract of land in the East coast The northern part of this territory is dry while the southern side is a low level coastal area and a plateau Kenya is important for coffee maize rice cotton sisal hemp cocoanuts sugarcane and wheat In Kenya dairy and other animal products have developed and the country has an export trade in these products with the neighbouring countries and also with Europe *Mombasa* is the chief port and the largest town in British East Africa *Nairobi* is the capital and an important commercial town

Tanganyika produces tobacco coffee cocoanut rubber maize sisal rice and wheat Mica gold coal and diamond are also said

to exist. Pastoral industry is also important. *Dar-es-Salaam* is the capital and chief port.

Nyasaland is essentially an agricultural country; tobacco, tea, coffee, maize, rubber, sisal hemp, and cotton being her principal products. Gold, copper iron, mica, coal and manganese are found in the country.

Off the coast of Tanganyika Territory are situated the two low-lying islands of *Zanzibar and Pemba*. These two islands produce the bulk of the world's supply of cloves. Copra and cocoanut are the two other important products. Railways are totally absent in these islands and the communication is maintained by roads and seas.

British West Africa includes Nigeria, Gold Coast, Sierra Leone and Gambia. Unhealthy climatic conditions, tropical diseases and inaccessibility make the development of these regions difficult. Of the British West African possessions *Nigeria* is the largest and the most important. Much amount of oil-palm, cocoa, rubber and groundnuts is produced. Lumbering industry is also important. High class furniture wood like mahogany and ebony is also grown. Ivory is found and largely exported to Great Britain. Nigeria is an important producer of tin in the world. There are also deposits of coal, silver, lead, manganese and monazite. But they are not yet fully exploited. *Lagos* is the capital and chief port.

The Gold Coast is rich in agricultural and mineral resources. She is the largest producer of cocoa in the world. "Having equal facilities with other producing countries as regards climate and soil, it has out-stripped its competitors by its more skilful exploitation of the land, by experienced administration on the part of the white men and by keeping cocoa as the only important money crop. Other factors are that the Gold Coast lies on an old established shipping route, and that the development of railways and roads has made communication between the plantations and the ports very much superior to those existing in the older producing countries, such as Ecuador." Besides, large amounts of copra, groundnuts, oil-palm, tobacco and rubber are grown. The country is rich in gold and diamond.

The northern and eastern parts of *Sierra Leone* are broken and high, while the southern and western parts flat and low. The principal agricultural crops are rice, oil-palm, coffee, cocoa,

maize, millet groundnuts and cocoanuts, of which rice is the most important one it being the staple food of the natives. Sierra Leone is also important for gold diamond, platinum and iron but till now they are not commercially exploited. Cocoa, coffee ginger chillies and oil palm products constitute the principal items of export of the country. *Freelown* is the capital and chief port.

Although the climate of *Gambia* is not very satisfactory, it is suitable for satisfactory production of agricultural crops such as groundnuts rice maize cotton etc. Groundnut is the principal item of export. *Bathurst* is the capital and chief port.

In between the Congo and Zambesi basins lies the British territory of *Northern Rhodesia* comprising mostly of high plateau and low lands in the valleys of the Zambesi. The temperature in this part is relatively high. The greater part of *Southern Rhodesia*, also a high plateau, enjoys a more or less temperate climate. *Rhodesia* (both northern and southern) is noted for minerals. Large quantities of gold copper asbestos chromium lead zinc silver iron coal and tin are raised annually. Gold is the most important of all the minerals here and may be said to be the backbone of *Rhodesia*. Next in importance comes chromium which has secured a high position for the country. In fact, it is the mineral resources which have attracted the white settlers in *Rhodesia*. Agriculture is also important the principal crops being maize tobacco cotton wheat and oil seeds. Pastoral industry is also important. *Mauritius* is a British African island in the Indian Ocean. The island is of volcanic origin. It is an important producer of sugar. It occupies a significant position in the export trade of canesugar in the world.

FRENCH AFRICA

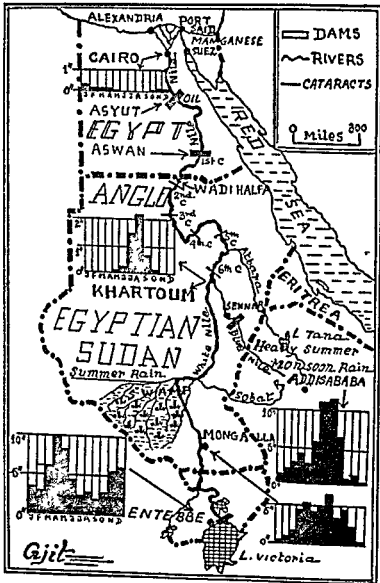
French North West Africa which includes French Morocco, Algeria and Tunisia is primarily an agricultural country. The Mediterranean climate prevailing in this part of North Africa makes a large production of wheat barley, maize and Mediterranean fruits possible. Minerals are also present of which iron, lead and phosphates are important. Wine manufacturing is its principal manufacturing industry. *Casablanca* is the chief port of French Morocco. *Algiers* is the capital and chief port of Algeria.

Tunis is the capital and chief port of Tunisia. *French West Africa* and *French Equatorial Africa* are mostly undeveloped. They are primarily agricultural regions. The principal products of these regions are oil-palm, rubber, cocoa, coffee, groundnuts and timber. Ivory is important. *Madagascar* is the largest of the African islands. Its principal agricultural products are coffee, sugarcane, rice, vegetable fibres and spices. Pastoral industry is also important. *French Somaliland* is primarily an agricultural country but is commercially unimportant.

EGYPT

Egypt covers an area of 386,198 sq. miles and has a population of 19,090,448. Barring the extreme northern part where Mediterranean type of climate prevails, the climate of the country on the whole is of the desert type. The average rainfall in Egypt is below 16 inches.

Egypt is a thriving and prosperous agricultural country. This seems to be an anomaly. The location of Egypt in the heart of the barren desert of Sahara would have made it a barren and unproductive country, but it is due to the existence of the Nile that she has become a flourishing agricultural land. The Nile which is formed by the union of two contributory rivers—the White Nile and the Blue Nile—provides life-blood to Egyptian agriculture. The Blue Nile originates from Lake Tana high up in Abyssinian Plateau and joins at Khartum, the White Nile which rises from Lake Victoria. The combined flow then passes over Egypt and empties itself into the Mediterranean Sea. The White Nile has a continuous flow of water throughout the year. The heavy summer monsoon rains in Abyssinia during the period June to October cause the river Nile to swell and inundate the neighbouring basins. The rich volcanic sediment carried by the Blue Nile from the mountainous districts of Abyssinia thus gets spread which increases greatly the productivity of the Egyptian soil, and this inundation, therefore, is the root cause of the prosperity of Egypt. Besides, the inundation water is diverted into storage canals for its subsequent distribution to the thirsty lands of Egypt, thus making continuous cultivation possible. Cotton, wheat, maize, sugarcane and rice can be profitably grown in the irrigated basins of the Nile river. Out of the total area of 386,198 square miles the Nile basin covers 13,500 square miles.



Egypt and the Nile

This basin is well-developed in agriculture and is the most densely populated area of Egypt. Even now the food situation of Egypt

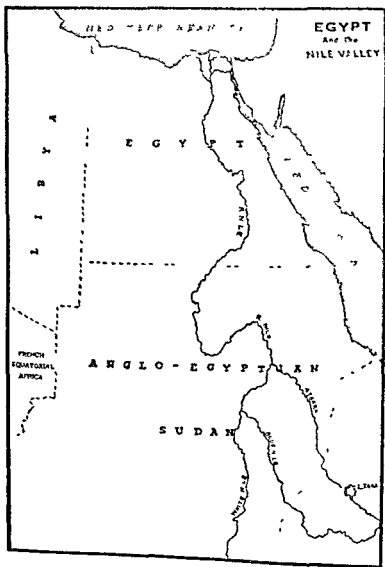
is entirely dependent on the increase or decrease of water in the Nile. Besides, the Nile renders good transportation service. From Aswan the river is navigable right up to the sea. Due to the navigability for 1000 miles from the estuary all the important towns and commercial centres are located on the banks of the Nile. It is evident, therefore, that but for the Nile, Egypt would have been no better than the Sahara itself devoid of any human habitation because of the very unsatisfactory rainfall, and it is, therefore, not an exaggeration that the greatest and the earliest known civilized "*Egypt is the gift of the Nile*".

Egypt is mainly agricultural and about 62 per cent. of the total population is engaged in agricultural occupation. Cotton is the principal crop. Wheat, barley, maize, millet, rice and sugarcane are also grown. Very little mineral wealth is found. Petroleum is the only important mineral found in the deserts at Ras Charib, Ase, Sudr and Ilughada.

The importance of Egypt in relation to world trade routes cannot be ignored, since it is the converging point of inter-continental land, sea and air routes. Egypt is the connecting link of the three continents - Asia, Europe and Africa. Prior to the opening of the Suez Canal all the caravan routes into the interior of Africa radiated from Egypt. Even now most of the trade of the Nile basin passes through it. Besides the caravan routes, the lines of the *Baghdad Syrian Railway* and the *Egyptian Railway* converge round about the Suez Canal in Egypt.

Moreover, Egypt stands as the gateway between the western and eastern worlds. The Suez route which touches more lands and serves more people than any other route, passes by Egypt which thus has acquired an international importance. From Alexandria and Port Said a route runs up to London through the Suez Canal and Gibraltar, the distance of the route being 3,250 miles. The distance of the route to Bombay from Port Said through Aden is 1,660 miles. From Port Said different routes run to different places—one through Constantinople to Odessa, another to Venice via Brindisi, the third to Naples and Marseilles via Messina connecting thereby Italy and Greece, the fourth to New York through Gibraltar, the fifth to Rio de Janeiro in South America, and the sixth to Australia and then via Melbourne to New Zealand. These sea routes

being more convenient from commercial view-point, the major portion of Egypt's foreign trade is carried on through them.



Egypt and the Nile Valley.

Through these routes cotton, onion, manganese and petroleum are exported and cotton textiles, iron, steel, crude oil and refined oil, coal, fertilisers etc., are imported. Again, its importance has been greatly enhanced by the development of air routes between the East and the West, since it stands as a half-way house between the two. Due to the fact that Cairo has become the converging point of the British and Dutch airways, it has now been possible to travel easily and in a very short time to various places such as India, South Africa, East Indies, Palestine, Aswan, Alexandria, etc. and this has led to a considerable expansion of and improvement in Egypt's foreign trade.

Cairo, situated at the head of the delta of the Nile, is the capital and largest city in Egypt. It is also an important air-route station. *Alexandria*, situated on the north-west fringe of the Nile delta, is the principal sea port of Egypt. It handles over 80% of the foreign trade of the country. Its hinterland extends over the whole of the Nile basin. The principal exports are cotton, cotton seeds and wheat.

ABYSSINIA

Abyssinia or *Ethiopia* is an independent country, surrounded by British, French and Italian territories. She is maintaining her independence even now. She was annexed by Italy in the early part of 1936. But since 1942 she is again independent. The country is practically all high land and the climate is healthy and stimulating. Her fertile soil, summer rainfall and tropical climate have helped her greatly in agriculture. Cotton, coffee, wheat and barley are grown. The presence of the Blue Nile for irrigation makes continuous cultivation possible. At present her agricultural development is not great. It is believed that her mineral wealth * is considerable, but as yet it is undeveloped and unexplored due to absence of communication facilities and uncivilised nature of the native population. The vast potentialities of economic development through exploitation of the country's natural resources—having the country's backwardness as a strong background—tempted the Italians to make Abyssinia a colony of their own. Potentialities for the pastoral develop.

* Coal, iron, copper, sulphur, gold, marble, mica, rock-salt and mercury are said to be present.

ment of the country are also very great. Her rugged hills and mountains afford ample ranching grounds. *Addis Ababa* is the capital and chief commercial town of Abyssinia.

PORTUGUESE AFRICA

Portuguese territories include *Mozambique* in the East Africa and *Angola* and *Portuguese Guinea* in West Africa. In Portuguese East Africa or Mozambique economic development is meagre. Agriculture is the mainstay of the people. Maize, coffee, groundnuts, sugarcane, tobacco, cotton and sisal hemp are grown. The region holds great promise of pastoral development. Copper, diamond and gold are present, but their exploitation has not yet begun. Portuguese West Africa or Angola and Portuguese Guinea are important for agricultural products. Rubber, coffee, sugar, oil seeds, maize and cotton are grown. ~~Ivory~~ and diamond are also found.

~~BELGIAN CONGO~~ situated in Central Africa occupies the basin of the Congo river and enjoys the equatorial type of climatic condition. Rubber, cocoa, oil palm, copal and coffee are grown. The inaccessibility of interior regions due to lack of communication facilities and low density of population are responsible in a large measure for its low economic development. Large reserves of minerals are known to exist. Katanga region is very important for copper. Gold, diamond, tin and silver are also present.

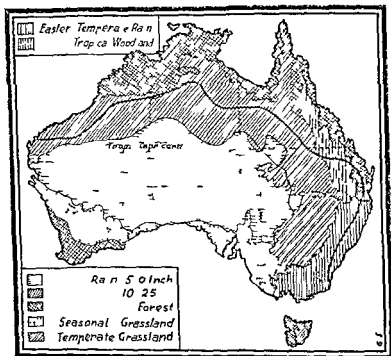
After the World War II (1939-45) the Italian possessions in Africa, namely Libya, Eritrea and Italian Somaliland came under the administrative control of the allied powers viz., England, France, Russia and the USA. But on 14th December, 1951 Libya (Tripoli) became independent and on 11th August, 1952 Eritrea became free from Italian control and joined in a Federation with Ethiopia. At present only Italian Somaliland is under the political control of Italy.

The major portion of LIBYA with the exception of the areas bordering the Mediterranean Sea comes under the Sahara and consequently barring the production of some wheat and Mediterranean fruits in the Mediterranean region no tangible economic advancement is possible here. *Tripoli* and *Benghazi* are the only important trade centres and they are the capitals of Tripolitania.

and Seranica respectively. To the east of the Anglo-Egyptian Sudan lies ERITREA on the coast of the Red Sea. The greater part of the country is desert-like and only in the coastal areas some quantity of rice, maize, tea, coffee, tobacco, sugarcane and oil seeds are grown. ITALIAN SOMALILAND is a backward country. Pastoral industry is the principal occupation of the natives. *Mogadisu* is the capital and principal port of Italian Somaliland.

CHAPTER XIV AUSTRALASIA

INTRODUCTION—Australasia comprises the Commonwealth of Australia, New Zealand and some other Pacific Islands. The Commonwealth of Australia includes Australia, the smallest of the five continents, Tasmania and some other small adjacent islands. Australia is situated to the south east of Asia, between



Australia* (Rainfall)

latitudes 10° S and 40° S and between longitude 110° E and 165° E and is the largest island in the world. Some of the outstanding characteristic features of this smallest inhabited continent of the world are as follows —

Firstly the continent lies entirely within the southern hemisphere, i.e. south of the equator and more than one third of it lies north of the Tropic of Capricorn. The southern two thirds of the continent is actually outside the tropic; therefore it enjoys temperate type of climate.

Secondly, the extreme length from north to south is nearly 2,000 miles and it is only about 1,100 miles from the Gulf of Carpentaria to the great Australian Bight.

Thirdly, the central Meridian of the continent is 135° E. It means that it is nearly half the way round the world from the British Isles.

Fourthly, the boundary lines of the five states are purely mathematical, consisting merely of straight lines, and therefore they are not natural boundary lines which usually follow river courses, mountains, deserts, etc.

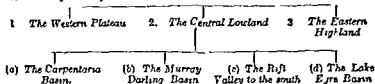
Australia consists of six semi-independent states—Queensland, New South Wales, Victoria, South Australia, Western Australia and Northern territory. The total area of the continent is 2,948,366 sq. miles and its population is 8,231,720, the density of population per sq. mile being 2.79.

The area, population and density of population per sq. mile of the different states of the Commonwealth of Australia in 1951 were as follows :—

<i>States and their Capital</i>	<i>Area (in sq. miles)</i>	<i>Population</i>	<i>Density of Population per sq. mile</i>
NEW SOUTH WALES (Sydney)	309,433	3,358,760	10.85
VICTORIA (Melbourne)	87,884	2,291,354	26.07
QUEENSLAND (Brisbane)	670,500	1,219,605	1.82
SOUTH AUSTRALIA (Adelaide)	380,070	729,836	1.92
WESTERN AUSTRALIA (Perth)	975,920	591,602	.61
NORTHERN TERRITORY (Darwin)	523,620	15,527	.03
AUSTRALIAN CAPITAL (Canberra)	939	25,036	26.66
AUSTRALIA	2,948,366	8,231,720	2.79
TASMANIA (Hobart)	26,215	307,014	11.71
COMMONWEALTH OF AUSTRALIA	2,974,581	8,538,734	2.87

PHYSICAL FEATURES—The eastern part of Australia is mountainous covering an area from York peninsula in the north to the western extremity of Victoria province in the south. The mountain range in this region is commonly known as the Great Dividing Range. In the middle of Australia and to the west of the Great Dividing Range lies a vast expanse of flat low lying land extending from the Carpentaria Bay in the north to the South Ocean in the south. The western part of Australia is a plateau, the coastal area being 1 000 to 1 500 feet high from sea-level and the major portion being desert like in every respect. A narrow flat land borders the coastline*.

*According to surface relief the continent of Australia is divided into three broad regions as follows —



1 The Western Plateau occupies practically the whole of Western Australia. The plateau with an uneven surface is much uniform in structure. The Western Plateau whose average elevation is 1,500 feet is composed of ancient metamorphic rocks. The interior of the plateau is almost wholly desert. The rivers are merely temporary water-courses and they disappear in sand in some parts or in salt lakes which appear especially in the south west. There is a wide coastal plain to the west but the coast is without any harbour. The whole region with the exception of the extreme south western part is climatically very dry and hence the plateau is almost uninhabited.

2 The Central Lowland or the Great Plain, runs from north to south across the continent. The two important ranges which divide the plain into four divisions are the Grey Ranges and the Salween Ranges. In this plain there is only one perennial stream, i.e. the Murray river and its tributary the Darling. The divisions are —

(a) The Carpentaria basin, which is drained by only one river, i.e., the Flinders.

(b) The Murray Darling basin is the most fertile tract where rainfall is considerable. The Murray which rises from the highest mountains in Australia is 1,300 miles long. The great plain created by the Murray Darling is the most fertile part in the Central Lowland region.

(c) The Rift valley is the part between Lake Eyre and the Spencer Gulf.

(d) The Lake Eyre basin. The Eyre lake which is 40 feet below sea level is a salt lake, and some of the rivers have found their outlet into this lake.

3 The Eastern Highland is the most important salient physical feature of the continent of Australia. It runs along the whole east coast, i.e., from Cape York to Bass Strait, a distance of more than 2 000 miles. The highest edge of the highland is towards the Pacific Ocean and therefore the eastern coastal plain is narrow. The eastern highland is known as the Great Dividing Range and this is the main watershed of the continent. The Range has various names in different states of the continent. The highest peak is over 7 000 feet. The narrow coastal plain which lies between the coast and the Range has more rainfall than that in any other part and therefore the eastern coastal plain is a very densely populated part of the continent.

CLIMATE—Australia lies mainly in the south-east trade wind belt and experiences, therefore, adequate rainfall throughout the year. But the greater part of the rainfall falls during the summer months. The continent has marked variation in climatic condition as between different parts due to its varied relief and location. The interior of the continent in January (summer) has a temperature of over 90° F., the north of the Tropic has over 80° F. and the rest of the continent has a temperature of over 72° F. In July (winter), the region north of the Tropic has a temperature of over 64° F. and in the south of the Tropic, the temperature is only 48° F. on an average.

In summer the south-eastern sea wind being obstructed by the Great Dividing Range causes heavy rainfall on the east coast. The east coast gets rain throughout the year as the south-eastern wind blows in the same direction all the year round. As it advances westwards after crossing the mountains the amount of moisture decreases with the result that the western part of the continent receives much less amount of rain, and this accounts for the formation of deserts in central and western Australia. In winter the westerlies cause rainfall on the south-western part of Western Australia and almost the whole of Victoria province on the east coast, and consequently the climate in these regions is Mediterranean. The north coast is damp and hot while the west coast is practically rainless. The Tropic of Capricorn almost bisects the continent and nearly half the total area lies north of the Tropics. The major portion of Australia, therefore, particularly the northern districts, experiences high mean temperature. Although the coastline of this continent is more than 12,000 miles long it is unbroken in many places and a major portion of the interior is nearly 1,000 miles off from the sea. Due to the fact that the highlands bordering the coast, particularly in the east, shut out the sea wind, sea influences are not felt in the interior parts of Australia.

On the whole, the climate of Australia can be summarised as warm temperate in the east coast, and Mediterranean in the south. The western part is practically rainless and the soil is sandy,

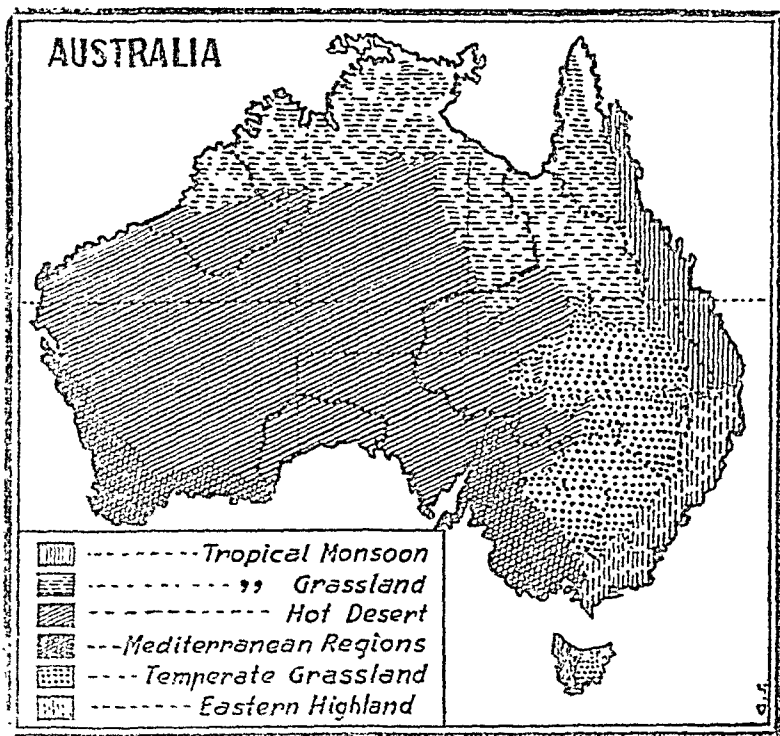
while the northern side is a desert with damp and hot climate in the coastal areas

DISTRIBUTION OF POPULATION—The climatic variation in Australia has a great bearing on the distribution of its population. The northern coast is mostly inhabited by the aborigines as (with the only exception of Darwin) the damp and hot climate is unfavourable for any white settlement. The heart of Australia is a desert with no settlement in it. The Mediterranean type of climate which prevails in the southern part of western Australia makes Swanland the most densely populated area. The hostile climate of South Australia is responsible for the sparse population in this part of the continent. But in spite of the desert like climate the gold mines in the west and south of Australia have attracted European settlers. The warm temperate climate of the eastern part also accounts for the very dense population there.

CLIMATE AND ITS EFFECTS ON THE EAST AND WEST COASTS OF AUSTRALIA—The climate of the eastern coast of Australia being more favourable for human habitation than that of the western coast—agriculture, mining, industry, transport system, etc. have developed more in the east than in the west. In the east coast due to summer rain cotton and sugar cane are grown in the northern plains. To the south of this lie the maize fields with Brisbane as the chief centre. Further south lie the wheat fields with Gippsland as the chief centre. Adjacent to the wheat belt lies the extensive grassland where cattle are reared. This region is the largest producer of wool in the world. Due to Mediterranean climate various kinds of fruits grow in Victoria province. Moreover, gold, silver, copper, lead, etc., are found in Queensland and coal in New South Wales. Eucalyptus is the characteristic tree of the east coast. The warm moist climate has made the east coast the most densely populated region and agriculture, animal husbandry and mining are the principal occupation of the people.

Due to scanty rainfall the northern part of the west coast is a desert. This coast is sparsely populated except the gold-

fields at Pilbara. Besides, the sea is the only means of traffic, there being no existence of river in this part of Australia. Coolgardie and Kalgoorlie mines are very rich in gold reserves. Wheat is the principal agricultural crop. Besides, oats, barley and various kinds of fruits are also grown. Karra and Jarrah and other valuable trees have enriched the forests of the west coast of Australia. Wool is another important product of this coast. But in spite of these natural resources European settlement in the west coast of Australia was not possible on account



Artesian Well Irrigation (dotted)

of poor rainfall and dearth of transport facilities by internal waterways with the result that internal economic development has not been possible. With the exception of Swanland other places in the west coast are very much thinly populated. In the Mediterranean regions of the southern part of west coast mining is the chief occupation of the people.

NATURAL REGIONS—On the basis of climate and vegetation Australia can be divided into six major natural regions —(1) Tropical monsoon region in the north and north east (2) Tropical grassland region in the north west (3) Hot desert region in the west (4) Mediterranean region in the south and south west, (5) Temperate grassland region in the Murray Darling basin, and (6) Eastern highland region in the south east

CAUSES OF ECONOMIC BACKWARDNESS—Australia is noted for its agricultural pastoral and mineral resources. In spite of its richness in natural resources it has not developed its manufacturing industries to a great extent. The causes attributing to its comparative backwardness in manufacturing industries are of the following nature —

(1) *Its location in southern hemisphere far from the world's trade routes*—Being far away from the mainland it did not receive any attention of the advanced nations for a long time for which the prospect of development of that country industrially was never thought of until very recently

(2) *Unfavourable climate*—The greater part of Australia is a desert and climate, on the whole is inimical to the economic development of the country

(3) *Sparse population*—Australia is scantily populated. Its average density of population is 2.8 per square mile as against over 314 per square mile in India. Its natural resources are plentiful so as to profitably engage all the people of Australia. The 'White Australia' policy however shuts out coloured labour from the densely populated Far Eastern countries thus making proper exploitation of the resources difficult

(4) *Regular Coastline*—The coastline of Australia is relatively short in comparison to its size and is less than 12 000 miles in length i.e. 4 miles of coastline for every 1 000 sq. miles of area. Besides it is mostly regular thus accounting for the inadequacy of its ports

(5) *Inadequacy of communication facilities*—Means of transport are not well developed in Australia. As regards the waterways the Murray and the Darling are the only two rivers

which are navigable for a short distance. The rest of the rivers are short and full of rapids. The development of railways too is very meagre. The Australian Commonwealth is roughly three times the size of undivided India, but its railway mileage is about 28,000 miles as against 43,000 miles of India.

(6) *Distance of coal from iron-fields*—Unfortunately for Australia its coal and iron mines are not situated side by side for which some difficulties are experienced in developing industries.

INDUSTRY—Due to the handicaps mentioned above manufacture of cotton textiles, rubber goods, motor-cars, etc., has not developed in the country, although large towns like Melbourne, Sydney and Newcastle have some factories for these articles. Rockhampton, Gladstone, and Brisbane have ginneries (factories for extraction of cotton seeds from raw cotton). Almost everywhere in Australia, particularly in Queensland, New South Wales and Victoria innumerable cattle are reared and Brisbane and Marryborough have earned reputation in butter-making, while Toomwoomba in cheese. Although the tropical lands and the savannahs provide the best quality beef-cattle, the great distance of the meat market from the producing regions has greatly hindered the development of meat industry in Australia. In the rainy coastal plains of eastern Queensland where sugar-cane is grown exist sugar mills in towns like Cairns, Townsville, Mackay, etc.

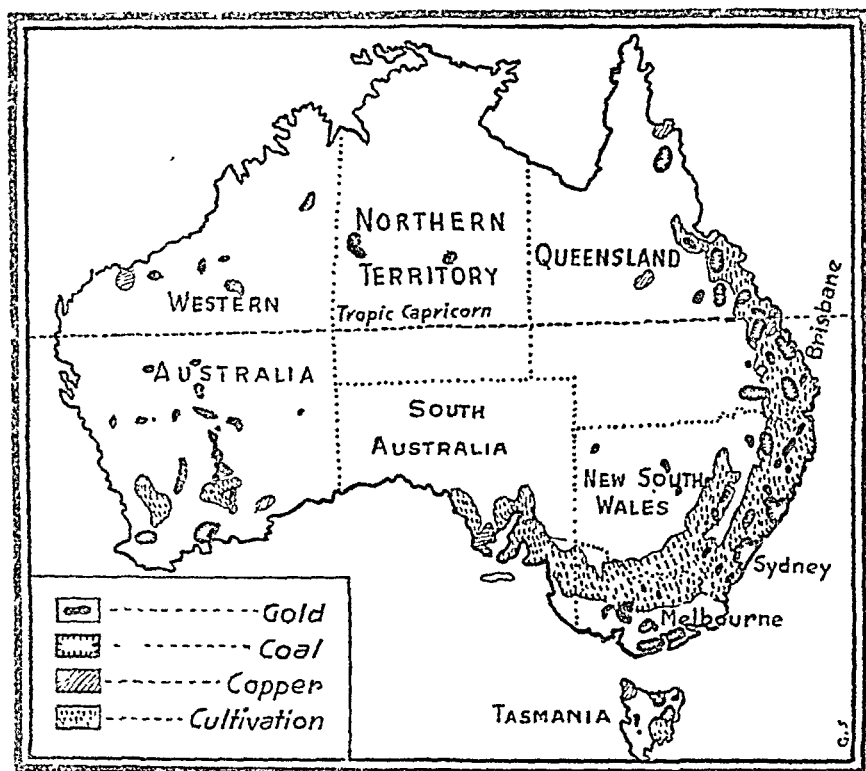
FISHING INDUSTRY is not sufficiently developed. Pearl fishery along the tropical coast is important. **LUMBERING INDUSTRY** is not important, as much of the country is too dry for tree-growth. Only eastern highlands have considerable areas under forests. **PASTORAL INDUSTRY** is by far the most important industry of Australia. The principal wealth of Australia is its sheep, and the rearing of sheep is one of the most important occupations of the people. The climate of the continent is best suited for pastoral industry and it is mainly in dry areas, where the rainfall is between 10 and 20 inches annually and where the summer temperature does not exceed 75° F., that the rearing of

sheep is practised. Hence the leeward side of the Eastern Highland is an important region for sheep-rearing. Australia possesses the largest number of sheep in the world. New South Wales is the principal sheep-rearing region. Victoria, South Australia, Queensland and Western Australia are the other important wool-producing regions. Australia is the first producer of wool producing over a quarter of the world's production. "Wool is not only the outstanding feature of the Australian pastoral industry, but is also the basis of the nation's economic life." In spite of this, however, Australia has not been able to develop its woollen industry. The reasons are not far to seek. The area of arable lands available being far in excess of the population, the Australians have been induced to devote their energy more to agriculture and animal husbandry than to industry. Besides, different states of Australia have different gauges for railways resulting in frequent transshipment and high transportation charges. In Australia coal or hydro-electric power, necessary for the development of wool industry, is quite insufficient. It is, therefore, more advantageous to export raw wool than to import machineries and establish wool industry. If Australia had not adopted the "White Australia" policy it could have developed much of its industries with the aid of Asian labour. All these factors have combined together to make Australia primarily an agricultural country. Attempts are, however, being made in recent years to develop manufacturing industries based on its natural resources.

Cattle-rearing is also important and is found on the windward side of the Eastern Highland due to the moist and wet climate of the eastern side where rainfall exceeds 30 inches per annum. Nearly 8% of the milk produced is made into butter.

AGRICULTURE is largely practised in Australia and is second only to pastoral industry in importance. Although the development of irrigation system and the method of dry farming have counteracted the serious handicap caused by uncertain or scanty rainfall the area under crop has not exceeded more than 11%. Wheat, oats, barley, maize, sugar cane and rice are grown. Wheat is the most important agricultural crop and occupies over 50

per cent of the cultivated area. The principal producing regions are South Australia, Victoria, New South Wales and South-western Australia. Wheat produced in these regions is generally exported to Great Britain, Italy, India and Japan. Sugar-cane is grown in the eastern coastal regions of Queensland, the principal producing areas being Cairns, Townsville, Mackay, etc. Mediterranean fruits are largely grown in the South and South-west Australia.



Australia (Mineral)

THE MINERAL WEALTH of Australia is considerable. It is an important gold-producing country. Its contribution to world output is nearly 5 per cent. The principal gold-producing regions are Coolgardie and Kalgoorlie in Western Australia ; Ballarat and Bendigo in Victoria ; Bathurst in New South Wales ; and Queensland. It is the second largest producer of zinc and lead in the world. Most of zinc and lead is produced in Broken

Hill district of New South Wales Coal is found in sufficient quantities in New South Wales, Queensland Western Australia and Tasmania Iron ore is mined in South Australia and New South Wales Iron Knob and Iron Monarch in South Australia have considerable iron deposits The total deposits of iron ore in Western Australia are said to be considerable but they have not been fully worked due to lack of proper transport facilities Silver, tin copper and platinum are also mined Silver is mined in Broken Hill district of New South Wales and Tasmania Tin is mined chiefly in Queensland and Tasmania Precious stones are also found

The TRANSPORT system of Australia is not at all satisfactory Most of the rivers on the eastern and western slopes of the Dividing Range dry up in summer months and become violent in the rainy season Consequently, they are useless for navigation purposes The only river system suitable for inland transport is the Murray Darling of South Australia which are snow fed rivers and as such they have continuous flow throughout the year They can rightly be said to be the life line of the continent

The rivers proving un-serviceable as transporting agents, Australia should have a thorough network of railway lines, but due to the unfavourable climate of the interior and the high density of population in the eastern coast the railways are confined to the coastal areas only connecting different ports These railways have some branch lines connecting the agricultural and mining centres of the interior parts The main lines of the South east and West Australia are joined by the Trans Continental line linking up the east and west of Australia Air routes have also developed connecting the distant centres of western and northern Australia as well as those of western Queensland

Australia has about 500 000 miles of roadways The highest concentration is to be found near the south where rainfall is quite sufficient for the growth of crops and the distribution of population is great On the whole, it can be said that the distribution

of agricultural crops and minerals has a great effect on the development of roads and railways in the continent.

TRADE—Australia is the largest exporter of wool in the world. The principal customers are the north-western European countries, particularly the United Kingdom. Other exports are wheat, gold, dairy products, meat, hides and skins and metallic ores. The chief imports consist of textile goods, hardware, machinery, chemicals, petroleum and sundry manufactured goods. The major portion of the trade is done with the United Kingdom and the U.S.A.

PORTS and TOWNS—The principal ports of Australia are its manufacturing centres and large towns. *Sydney*, the capital of New South Wales, is the chief port of Australia. It deals with over 40 per cent. of the foreign trade of the country. It has an excellent natural harbour, possibly the best in the world. Coal and iron, found in its neighbourhood, helped development of many manufacturing industries. *Melbourne*, the capital of Victoria, is second to Sydney in importance as a port. It has considerable trade with the neighbouring islands of Tasmania and New Zealand. *Adelaide* is the capital and chief port of South Australia. It is the principal wheat port of Australia. *Brisbane* is the capital and chief port of Queensland. It is also an important industrial centre. *Perth* is the capital and chief commercial centre of Western Australia. It is served by the port of Fremantle. *Hobart* is the capital and chief port of Tasmania. Its principal exports are wool, coal, silver, zinc, lead and fruits. *Darwin* is the capital and chief port of Northern Territory. It is an important air-station in the Imperial air-route to Sydney.

NEW ZEALAND

INTRODUCTION—*New Zealand*, situated to the south-east of Australia, consists of North Island, South Island and many other adjacent small islands. It has an area of 103,736 sq. miles and a population of 1,984,730. It resembles Great Britain in many respects, for which it is known to be the *Brighter Britain of the South*. Both Great Britain and New Zealand are groups

of islands lying in the westerly wind belt—the former is located in the Atlantic Ocean in the northern hemisphere very close to the world's trade routes, whereas the latter is located in the Pacific Ocean in the southern hemisphere very far away from the principal trade routes of the world. Both the islands have the same physical features. Both have mountains running north-south in the west and plains in the east. The climatic conditions of both are also the same. Although New Zealand is located within latitudes 35° and 45° as against Britain which is located within 50° and 60° the moderating influence of the sea makes their climate almost the same. Both the islands get greater rainfall in the west than in the east under the influence of the westerlies. None of these islands ever experiences deficient rainfall with the result that both grow almost similar types of agricultural crops. In vegetation and animal life both the islands have great resemblance. Like Great Britain New Zealand's main crops are wheat and oats. The same kind of English sheep producing long lustrous and strong wool as reared in Lincoln Leicester, etc. are also reared in the pastures of New Zealand. But Great Britain is the most industrially and commercially developed country of the world. New Zealand on the contrary, is a very backward country industrially. Even now pastoral industry and agriculture constitute its principal industries.

PHYSICAL FEATURES—New Zealand is a highly mountainous country. On the western side of the South Island runs from north to south a long range of snow capped mountains, better known as the "Southern Alps", while on the eastern side of the island lies the extensive Canterbury Plains. The western part is elevated. The rivers are full of rapids and falls and consequently they are not suitable for navigation for a long distance. They, however, provide a potential source of water power. The major portion of New Zealand being under the influence of the sea, a temperate climate prevails, neither the summers being very hot nor the winters very cold. On account of bracing climate and pleasant natural scenery New Zealand is called Switzerland of the South.

Nearly two-thirds of the surface of New Zealand is suitable for AGRICULTURE and PASTORAL INDUSTRY. PASTORAL INDUSTRY is by far the most important and its products constitute over 80 per cent. of its total exports. "The uncrowned king of the country is sheep." New Zealand owns the largest number of sheep in the world. The chief sheep-rearing regions are Canterbury plains, Otago plateau and Wellington plains. Wool, meat, dairy products, hides and skins are largely produced. Originally, the distance from the consuming markets did not encourage New Zealand to develop meat industry and sheep were reared almost solely for the purpose of wool, meat being consumed locally. The introduction of cold storage, however, brought the distant markets closer and offered New Zealand ample facilities for rearing mixed breeds of sheep for production of both wool and mutton. The excellent climate has enabled New Zealand to rear cattle extensively in the rich pastures, particularly in Auckland and Wellington, resulting in a satisfactory development of beef and dairy produce. The development in the pastoral industry is evident from the fact that wool, hides, skins, butter, frozen meat, cheese, etc. now constitute over three-fourths of the total exports of New Zealand.

AGRICULTURE is second to pastoral industry in importance. Wheat, oats, barley, maize and potatoes are grown. The fertile plains of Canterbury are important in producing wheat. Apple orchards are important and there is considerable export of apples. Apricots and oranges are also grown.

LUMBERING industry is also important. Nearly 20 per cent. of the total area is devoted to forests. In recent years increasing attention is being paid to its forest resources.

MINING and MANUFACTURING industries are not very important. In proportion to the size of the country the population is very thin. Moreover, it is located far away from the great industrial centres of the world. These two handicaps, coupled with factors such as transport difficulties, etc. have stood in the way of the industrialisation of the country, although the country possesses abundant supply of raw materials and also coal

and hydro-electric power resources. Its mineral wealth is not great. Little coal, petroleum, gold, silver, iron and copper are found. Manufacturing industry is chiefly concerned with the processing of its agricultural products.

Means of COMMUNICATION are not well developed in New Zealand. Due to the mountainous nature of the country road and railway development is difficult. The railway mileage is nearly 4,000 miles. The rivers are useless for transport services. On the whole, its means of communication are as poor as those of Australia.

TRADE—The principal exports of New Zealand are wool, meat, dairy produce, hides and skins, fruits, timber and gold. Its principal imports are textile goods, iron and steel, machinery, chemicals and paper. Much of its trade is with Great Britain and the Commonwealth countries, but the nearness of America shows a tendency to lessen it.

PORTS and TOWNS—The principal sea ports of New Zealand are its most important commercial centres. Wellington, its capital, is situated in the North Island. It is a natural port, and an important collecting centre of pastoral products. Auckland, situated on the narrow isthmus of North Island, is also an important port and trade centre. Dunedin is the principal town and important port of South Island. It exports gold, wheat, barley, oats, and dairy produce.

CHAPTER XV

ASIA

INTRODUCTION—Asia is the largest continent of the world comprising nearly one-third of the land surface of the globe. Barring a few islands, the whole of Asia lies in the Northern Hemisphere. Asia covers an area of 17,000,000 sq. miles and has a population of nearly 1,269 millions, which is greater than that of any other continent and is more than half of the world's total. But its distribution is very irregular, depending mainly on the annual rainfall. In the monsoon regions, therefore, where rainfall is adequate and agriculture has thrived well the density of population is very high. For example, China, Indian Union, Pakistan, Japan and Java contain over 80 per cent. of the total population. On the other hand, the plateau and desert regions of Central Asia and Arabia and the cold regions of Northern Siberia have very sparse population. It may be said, however, that the average density of population per sq. mile in Asia is 74. The distribution of population is controlled mainly by climatic and vegetation conditions.

The coastline of Asia is short compared with the vastness of its size. Due to the unbroken nature of its coast and location of Europe on the west its coastline is only 36,000 miles long, that is, one mile of coastline for every 472 square miles of area.

PHYSICAL FEATURES AND NATURAL DIVISIONS—Based on variations in relief the continent of Asia can be divided into *five* divisions :—

(1) *Vast flat Lowlands on the North and North-west*—The northern and western parts of Asia comprising almost the whole of Siberia from the Arctic Ocean in the north to the Caspian Sea in the south-west are great plains. These are merely an extension of the vast plains of Europe and because of their sloping nature towards the Arctic Ocean, the three great rivers of Siberia—the Ob, Yenesei and Lena—flow northwards,

(2) *Mountain Ranges and Plateaus in the Centre*—This region extends from Asia Minor on the Mediterranean coast right up to the north eastern extremity in the Pacific coast. This vast high land is also an extension of the mountainous regions of Europe and the lofty mountain ranges of Asia lie in this region.

(3) *The Highland Region in the South*—This region includes Arabia, the Deccan plateau composed of volcanic lava and primary rocks and Yunnan and Indo China in the south east of Asia. These three plateaus are sloping towards the east.

(4) *Flat Plains of the River Basins*—The river basins comprising the basins of the Tigris and the Euphrates of Iraq, of the Ganges, the Brahmaputra and the Indus of India and Pakistan, of the Irrawadi of Burma, of the Mekong in Cambodia, of the Menam in Thailand, and of the Yang tse Kiang, the Hwangho and the Sikiang of China are low and extremely fertile.

(5) *Islands*—The islands in the east and south-east of Asia comprising among others the Allusians, Keurile, Japan, the Philippines, Borneo, Ceylon etc. spread like a garland around the continent are also included within political boundaries of Asia.

CLIMATE—Due to varied relief of the continent, variation in climate ranging from extreme cold to extreme heat is experienced in different parts of the continent. The northern part of Asia lies in the cold zone, central part in the temperate zone and the southern part in the tropics, with the result that some parts experience extreme climatic conditions. In the far northern part where rainfall is scanty and winter precipitation is in the form of snow, the winter is longer than the summer and the intensity of cold is very great. Much of the central plateau region is desert as the rainfall is inadequate and not well distributed throughout the year. Cold climate prevails in the mountain regions. The climate of the river basins in the south is hot and moist except in the case of the Tigris and Euphrates basin and the lands further west where Mediterranean type of climate prevails. Due to the insular position, the climate of the islands in the Pacific

is more or less temperate, but that of the islands of the south-east is tropical.

Based on the difference in climatic conditions Asia can be divided into seven regions :—

(1) *The Tundra Region* comprising the Siberian plains, and the areas near the Arctic Ocean. The climate of this region is of Polar type, the winter being long and severe, characterised by scanty rainfall in summer and snowfall in winter.

(2) *The Cool Temperate Regions* spread from the Arctic circle to latitude 50° N. Here the summer is short and dry but the winter is long and severely cold.

(3) *The Steppes* which include the south-west of Siberia and a part of Mongolia. The climate here is extreme.

(4) *Equatorial Regions* include the islands in the south and south-east of the continent, characterised by high temperature and heavy rainfall throughout the year.

(5) *Mediterranean Region* comprising Asia Minor, Syria, Palestine, Turkey, Trans-Jordan and Iraq. The climate here is mild with wet winter and dry summer.

(6) *Monsoon Region* comprising southern and south-eastern Asia (which includes India, a part of Pakistan, Indo-China, South China and some parts of Japan). This area experiences dry temperate winter and hot summer with profuse rainfall.

(7) *Desert Region* comprises the plateaus of south-western and Central Asia (including the Gobi desert of Mongolia, and the deserts of Turkistan, Arabia, Persia, part of Tibet, Baluchistan, Sind and Rajputana). The climate is extreme here.

TRANSPORT—The rivers of Asia play an important role in the *internal communication*, but the varied relief and climatic conditions sometimes retard the full utilisation of these rivers as great highways of commerce. In Northern Asia the principal rivers of Siberia—the Ob, Yenisei and Lena—although navigable for a great distance are of local importance only because of their unserviceability in winter months. These rivers act as feeders to the Trans-Siberian Railway and herein lies their great importance. In Eastern Asia, China maintains a highly organised

river system. Of all the rivers of Eastern Asia the Yang tse Kiang is the most important one as means of transport and communication. The other important rivers of Eastern Asia—the Amur, the Hwangho and the Sikiang—although very useful as transport agents have their upper courses impeded in many places by shallows and rapids. In the south-east of Asia the Indus in Pakistan, the Ganges and the Brahmaputra in India, the Irrawadi in Burma and the Mekong in Indo-China are the principal arteries of commerce. In the south-west of Asia the Tigris and the Euphrates are the only important means of transport.

The existence of quite a good number of mountains, plateaus, deserts and numerous rivers has greatly hampered the extension of railways and in proportion to the vast area the railway mileage of the continent is very meagre. The following are the principal railways of Asia—

(1) *Trans Siberian Railway*—This is the longest railway of the world. It starts from Leningrad and crossing Moscow and the plains of Siberia terminates at Vladivostok.

(2) *Trans Caspian Railway*—This line connects Krasnovodsk on the Caspian Sea and Novosibirsk on the Trans Siberian Railway.

(3) *Trans Caucasus Railway*—This line extends from Batumi on the Black Sea to Baku on the Caspian Sea.

Besides considerable improvement on the railway transport has been effected in India, Pakistan, China and Japan.

Various air routes have also linked up Asia with other continents of the world. The main airways start from London and terminate at Australia, the Cairo, Baghdad, Karachi, Calcutta, Rangoon, Bangkok, Singapore and the East Indies. By airways communication has been established between Russia and Japan and between San Francisco and Manila.

MINERALS—Although Asia is very rich in mineral resources these have not been properly exploited for lack of mining enterprise and transport facilities. The various minerals with their producing areas are listed below—

Coal—China, Japan, India, Pakistan, Asiatic Russia, Indo-China, Malaya Archipelago, Iran etc.

Iron—Siberia, China, Japan, India, Indo-China, Iran, etc.

Gold—North-eastern part of Asia, *i.e.*, in the Altai mountains near lake Baikal. It is also found in India, Indonesia, Japan and the Caucasus mountains.

Silver—Siberia, Asia Minor, Burma, Indonesia and Japan.

Copper—Siberia, Asia Minor, Caucasus region, Iran, China, Japan and Indonesia.

Tin—Asia tops the list of tin-producing regions of the world. The East Indies and Malaya Peninsula are the largest producing areas in Asia, Malaya producing three-fifths of the world's total.

Mica and Manganese—Asia leads over other continents of the world, India being the largest producing zone in Asia.

Petroleum—Azar Baizan (Russia), Iran, India, Pakistan, Burma and the East Indies. Baku oilfield in Azar Baizan has earned for Russia the third place in the world. Iran enjoys the fifth position in the world in the production of mineral oil.

INDUSTRY—With the exception of Japan the whole of Asia is industrially and commercially undeveloped. Asia is primarily an agricultural country. The nature of its exports and imports substantiates as to its industrial backwardness. It is chiefly an exporter of raw materials and food-stuffs like cotton, jute, rubber, tin, silk, opium, tea, coffee and tobacco. Its imports comprise manufactured products like textiles, machinery, hardware, chemicals, paper, motor cars, etc. *THE PRINCIPAL FACTOR RESPONSIBLE FOR ITS INDUSTRIAL BACKWARDNESS IS ITS UNFAVOURABLE CLIMATE.* Asia is a compact land mass and its interior regions are uninfluenced by the moderating influence of the sea. Great variations in climatic condition in the interior—extreme cold in the north and equatorial and tropical climate in the south-east—hinder its industrial growth. Lack of communication facilities is another handicap. Due to unfavourable topographical features communication from the east to the west and from the north to the south is difficult. The presence of the Gobi desert and the mountains in the interior separates the east from the west,

and the high mountain ranges running east to west from the Pamir Knot cut off the north from the south with the result that easy communication facilities have not been established as between the different parts of the continent. Again most of the people inhabiting Asia are indolent, unenterprising and dull.



Asia (Mineral)

Asia may be broadly divided into three divisions (i) *the Far East*, (ii) *the Middle East* and (iii) *the Near East*. The Far East generally includes China, Japan, Indo China, Thailand, Burma, Malaya, Singapore, East Indies, India and Pakistan. The Middle East implies Afghanistan, Iran, Iraq and Arabia. The Near East includes Syria, Palestine (Israel), Asiatic Turkey, Trans-Jordan and some other minor territories. Siberia—

the Asiatic Russia—is included in the Union of Soviet Socialist Republic.

THE NEAR EAST

TURKEY—The Republic of Turkey (area 296,185 sq. miles) includes Anatolia or Asiatic Turkey, and European Turkey. Turkey is situated at the junction of Asia, Europe and Africa and this advantageous position determines its social, political and economic advancement. The construction of the Suez Canal has greatly lessened the importance of Turkey as the centre of caravan traffic between Asia and Europe. Until recently Turkey, “the sickman of Europe”, was a very backward country. But since 1920 a great change took place in the internal economy of the country and Turkey now is one of the foremost progressive countries of Asia.

Turkey in Europe comprises a very small unimportant territory with a population less than two millions. Asiatic Turkey has an area of about 287,000 sq. miles and a population over nineteen millions. It can be divided into *two* broad natural regions: (i) the coastal margins with the Mediterranean climate and (ii) the Central plateau where the climate is, on the whole, one of extremes.

Agriculture is the primary occupation of the country. It employs over 30 per cent. of the total population. The principal products are tobacco, wheat, barley, maize, oats, cotton, opium and Mediterranean fruits. Sesamum and linseed are also grown.

In aroma and flavour Turkish tobacco is the finest and best in the world. Nearly 50 per cent. of the tobacco grown is exported to U.S.A.

Turkey is well known for *pastoral industry*. Skins and hides, furs, raw wool (Mohair) and silk constitute principal items of export from the country. *Lumbering industry* in the wetter regions is important.

The country is rich in *minerals* like coal, chromium, zinc, copper, lead, antimony, etc. Almost one-sixth of the world's chromium supply comes from Turkey. The mining industry is

very ill-developed. Although since 1934 great advance was made in manufacturing industries, cottage industry still plays a more important role in the national economy, the principal manufactures being cigarettes, rugs and carpets. At present textile, paper, glass, sugar and cement industries are working.

Development of communication facilities in Turkey is not great. Altogether it has over 10,000 miles of roadways and nearly 5,000 miles of railways. Its principal exports are silk, rugs, carpets, tobacco, wool and fruits and principal imports are textile goods, hardware, sugar chemicals etc.

The principal towns are Istanbul, Ankara and Izmir. *Istanbul* or Constantinople, was formerly the capital of Turkey. It is the largest town of the Republic and the headquarters of European Turkey. *Ankara* is the present capital of the Republic and is the principal collecting and distributing centre. *Izmir*, formerly Smyrna, is the principal port of Asiatic Turkey.

SYRIA AND LEBANON—Formerly a French mandated territory—became independent in September, 1941. Syria has an area of nearly 72,234 sq. miles and a population of nearly four millions. It has a Mediterranean climate in the coast, but desert conditions in the interior. Lebanon has an area of 3,400 sq. miles and a population of over one million. It is a highly mountainous country. Surrounded by Syria on the north and the east, the Mediterranean Sea on the west, and Israel on the south. Lebanon is 135 miles long in the north-south and 25 miles to 50 miles wide in the east-west direction. Due to the prevalence of Mediterranean climate wheat, barley, olive, grapes etc. are grown in coastal regions.

Syria is essentially an agricultural country. Wheat, barley, maize, millet, Mediterranean fruits, cotton and tobacco are grown. Pastoral industry is important in the interior regions. Silk is also grown. Mining and manufacturing industries are not well developed, though Lebanon is believed to have considerable deposits of petroleum, iron, copper, nickel and chromium. Its exports consist of silk, wool, fruits and cotton and its imports include textile goods, hardware, machinery etc.

Damascus and *Aleppo* are the principal towns and important commercial centres in Syria. *Tripoli* is an important port of Lebanon. It is noted for export of mineral oil of Iraq. *Beirut* is the principal port as well as an important air-station in Lebanon.

PALESTINE and TRANS-JORDAN were British mandated territories in south-west Asia. Recently two independent states—the Jewish State of ISRAEL and the Hashemite State of TRANS-JORDAN—have been created out of these two mandated territories. ISRAEL has an area of 8,048 sq. miles and a population of 1.6 million. The coastal regions enjoy the Mediterranean type of climate and produce wheat, barley, maize and Mediterranean fruits. Although agriculture is the principal industry, pastoral industry is also important. There is not much mineral wealth in the country, the Dead Sea being the only source of some salts. Fishing in the Mediterranean Sea is important. Recently copper, gypsum, phosphate and manganese mines have been discovered in Negev region.

The principal exports are Mediterranean fruits specially oranges, fruits, jams and syrups, etc. and the imports include sugar, tea, textiles, hardware, motor car, etc. *Haifa* is the chief port. It is also the terminus of an oil-pipe from the Mosul oil-fields.

Jaffa is one of the important ports on the Mediterranean coast. Oranges, grapes and potash salts are exported from this port.

The Hashemite State of TRANS-JORDAN has an area of 37,700 sq. miles and a population of 1.2 million. The interior regions, with the exception of the Jordan valley, are barren deserts. *Agriculture* is the principal occupation of the people. *Pastoral industry* is also important.

THE MIDDLE EAST

AFGHANISTAN is a mountainous country (area 250,000 sq. miles and population 12 millions) and experiences extremes of climate between summer and winter months. Although a good deal of the country is too dry and rocky for successful cultivation, yet *agriculture* is pursued wherever possible with the aid of irriga-

and absence of communication facilities made their exploitation difficult. Recently gold in Kandahar, silver in Panjsir valley, sulphur in Moimana region and abundant chromium in Logar valley and Herat have been discovered.

Pastoral industry is important for yield of both wool and meat. *Manufacturing industry* is as yet ill-developed. The principal exports comprise wool, carpets, rugs, blankets, dried and fresh fruits. The principal imports are textiles, hardware, chemicals, sugar, paper, etc.

In Afghanistan railways have not made any headway even now. The rivers are swift-flowing and full of rapids and cataracts, and as such they are unsuitable for navigation. Recently metalled roads suitable for motor traffic have been constructed to connect the principal towns of the country.

Afghanistan has no outlet to the sea. *Kabul* is its capital and the largest collecting and distributing centre. Much of its trade is with India and Pakistan by the Khyber and Bolan Passes.

IRAN, like Afghanistan, is a mountainous country, and is nearly seven times the size of Great Britain. It experiences a continental type of climate. The central and eastern parts of the country are barren deserts and the interior mountainous. In the coastal regions bordering the Caspian Sea and the Persian Gulf *agriculture* is carried on with the aid of irrigation. Tobacco, cotton, opium, fruits, wheat and rice are grown. *Pastoral industry* is important and wool is the principal product. In the central plateau regions stock raising for yield of wool is extensively practised. Silk is also grown.

Iran is known to be rich in *mineral wealth*. It is the fourth largest producer of petroleum, the centres of production being Maidan-i-Naftan and Kermanshah districts. Coal, iron, copper, lead and manganese are present. But most of its mineral deposits are undeveloped, because of the lack of proper communication facilities, caravans being the only important means of transport. *Manufacturing industry* is not consequently very important. Carpet and shawl-making, glass and silk are its principal industries.

Its chief exports are petroleum, carpets, wool, shawls, silk, opium fruits etc and its imports comprise cotton piece goods, tea, sugar, hardware, chemicals etc *Bushire* and *Bander Abbas* are the principal ports on the Persian Gulf

IRAQ formerly Mesopotamia comprises mainly the fertile basins of the Tigris and the Euphrates. It has an area of over 116 600 sq miles and a population of nearly 5 millions. The country is primarily *agricultural*. Wheat tobacco, barley, dates cotton and rice are extensively grown on its fertile soil with the aid of irrigation. *Pastoral industry* is also practised and wool is an important article of export of the country.

Iraq has rich petroleum deposits. Its principal centres of production are Kirkuk Mosul and Khanaqin. Oil pipe lines from the producing centres run to Haifa and Tripoli, the Mediterranean ports of Israel and Syria. Asphalt is also raised. *Manufacturing industries* have not yet developed.

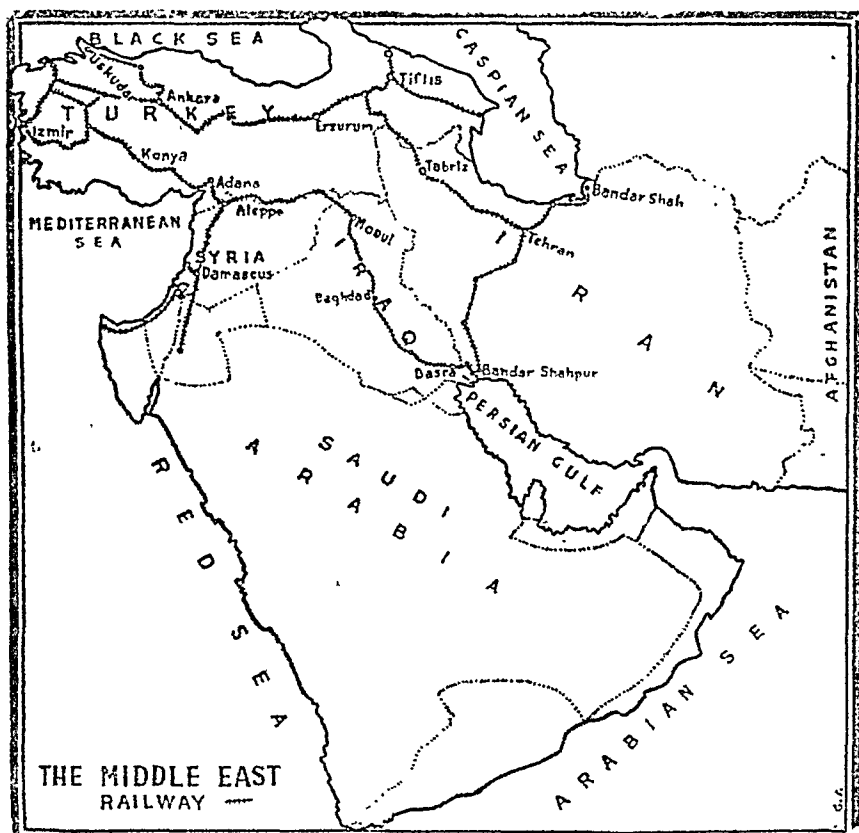
Its principal exports include dates cotton wool hides and skins, and its imports are cotton textile goods hardware, machinery, tea sugar etc *Basra* is an important trade centre and principal port of the country. *Baghdad* is the capital and the most important trade centre.

ARABIA is essentially a desert country inhabited for the most part by nomadic Bedouins. The area of the country is roughly 1,000 000 square miles and it has a population of nearly 6 millions. *The rigours of bad climate nomadic character of the people unstable and weak government and undeveloped communication systems* make the development of the country very difficult. Politically Arabia is divided into the kingdom of Saudi Arabia Yemen, Muscat and Oman and the British territory of Aden. *Agriculture* is practised in the coastal and oases regions. Dates, coffee wheat, barley and fruits are grown. Arabian coffee has a world reputation for the high quality and is known as 'Mocha' coffee from the port which exports it to the world's markets. Rearing of camel, sheep goats and horses is an important occupation of the nomadic people. Oil is known

to exist on the Persian Gulf coast in Arabia. At present arrangements are being made for its exploitation.

Its principal exports are coffee, dates, wool, horses and fruits. Its imports comprise cotton piece-goods, iron and steel, sugar, machinery and motor cars. *Aden*, situated in south-west Arabia, is its principal port. It is an important British naval base and is said to be the "Gibraltar of the East".

COMMUNICATION IN THE MIDDLE EAST—Development of communication system in the Middle East in recent years is considerable. The exigencies of the 1939-45



Communication system of the Middle East.

World War made otherwise useless railway lines to be developed. The *Trans-Iranian Railway* line (870 miles long), opened in 1938, joins Bandar Shah on the Caspian Sea with Bandar Shah-

port on the Persian Gulf via Teheran and Doab and thus opens a new all the year round supply route for Northern Iran and Russia. The branch line of the *Trans Caucasian railway* which runs from Tiflis up to Tabriz in Iran has been extended to join the Trans Iranian line at Teheran. Thus, facilities for trade between Russia and Iran have greatly increased. The *Iraqi State Railway* which runs from the port of Basra, situated at the head of the Persian Gulf, to Baghdad a distance of 354 miles has been extended up to Mosul. From Mosul a new railway line has been constructed to reach Nisibin on the Syrian border. From Nisibin the line runs close to Syrian border to reach Adana in Turkey where it meets the Anatolian railway line. The *Anatolian Railway* line runs from Uskudar (Scutari) to Adana via Konya. Thus a thorough connection between the Persian Gulf coast and the Black Sea coast by railway has been established. This is known as the *Basra Baghdad Bosphorus Railway* line. One of the branches of the Anatolian railway line which runs beyond Ankara (the capital of Turkey) has been extended via Erzurum to connect with the Russian Railway line of Trans Caucasia.

The riverway system of the Middle East is not very important as arteries of commerce. On the whole recent development of communication system has opened a new scope for exploitation of the potential resources of the country.

THE FAR EAST

CHINA—(Total area 2 903 475 sq miles) occupies nearly one-sixth of the area of Asia and is one and a half times the size of undivided India. Her total population exceeds that of any other country of the world and is over one fifth the total estimated population of the world (483 570,000). But the distribution of population is very irregular and uneven. Most of the population is concentrated in the coastal plains and the valleys of the Yangtze Kiang, the Si Kiang and the Hwang Ho resulting in the sparse population in the western parts of the interior regions.

CLIMATE—The nature of the country and her extensive area account for wide variations of climate as between different regions. The north-west, west and south-west being mountainous and far inland experience extremes of climate, while the east, south and south-east have summer rain and winter drought like the monsoonal regions.

PHYSICAL FEATURES—China is mostly a mountainous country. The western part being a part of the Tibetan plateau is the highest region of the country and this height gradually slopes down towards the east. The north-eastern part comprises a vast plain. Besides these, the rest is mostly composed of the basins of the Hwang Ho, Yang-tse-Kiang and the Sikiang and their deltas, and also of the coastal plains.

China can physically be divided into *eight* regions :—(i) the lower Hwang-ho basin on the north-east ; (ii) the Shantung peninsula ; (iii) the upper Hwang-ho basin in the north-west ; (iv) the upper Yang-tse-Kiang basin ; (v) the lower Yang-tse-Kiang basin ; (vi) the south-eastern plateau lying between the basins of the Yang-tse-Kiang and the Sikiang ; (vii) the Sikiang basin in the south ; and (viii) the Yunnan plateau in the south-west.

AGRICULTURE—China is essentially an *agricultural* country. Her fertile soil in the coastal lowlands and river-valleys, together with favourable monsoonal climate contributed greatly to the success of her agricultural industry. She is normally the world's largest producer of rice, tea and barley, the second largest producer of wheat and tobacco, and the third largest producer of cotton and maize. Wheat, barley and cotton are grown intensively in the Yang-tse-Kiang and Hwang-ho valleys. Rice, maize, tea and tobacco are grown in the south and south-west. The Sikiang valley is so fertile that the yield of rice per acre is approximately 25 mds. Soyabeans, groundnuts, oranges, hemp, oil-seeds and sugar-cane are also grown. China is the world's largest producer of raw silk, the producing centres being principally localised in the Yang-tse-Kiang and Sikiang valleys. Pastoral and fishing industries are not very important.

MINERALS—China is very rich in minerals. Of the mineral resources **COAL** is by far the most important. Rich coal fields yielding excellent quality of coal are scattered throughout the length and breadth of the country. In coal reserves China is next to the United States of America. The provinces of Shensi and Shansi possess the largest coal fields producing 85% of the total coal production of the country. Besides these two provinces coal is also found in large quantities in Tientsin, Shantung peninsula, south eastern Hunan, eastern Szechwan, northern Yunnan, Hopei and Kaichow. In spite however of the existence of such an excellent reserve the total annual output of coal is not very much satisfactory due to lack of systematic method of exploitation, the total output in 1947 being 17,200,000 tons. Next in importance comes **IRON**. Iron ores are scattered near the coal fields at Shansi, in Yunnan, in Hopei, in Shantung and other provinces of Northern China. Tayeh near Hankow, Sungian near Canton and Maoshan in Central China, Pingsiang in Siang valley and in Poang basin. The Yayeh iron deposits are one of the richest in the world. The principal iron ore reserves of China are estimated to be 1,984,619,000 tons. She is the largest producer of **ANTIMONY** producing over 60% of the world's total production. The bulk of the production comes from Hunan. The total output of antimony in 1948 was 3,200 tons. Kuangsi, Hunan, Kwangtung and Yunnan are the largest **TUNGSTEN** (Wolfram) producing areas of the world producing as much as 70% of the world's total. The yield in 1948 totalled 12,007 tons. **TIN** ore is plentiful near Mengsi in the Yunnan, the total output in 1949 being 4,232 tons. **PETROLEUM** is mined in Shensi province and on the upper Yangtse Kiang basin. The shale beds in south Manchuria and Shensi province are the principal source of oil. Besides these minerals **SILVER, LEAD AND ZINC** are found in Hunan, **MERCURY** in Hengshan and Nansen, **COPPER** in Yunnan and Szechwan, **GOLD and GRAPHITE** in the southern part of Shansi and **GYPSUM ASBESTOS**, etc., in Shantung. Much of China's mineral resources remain to be exploited because many of the rich mines lie far inland where inadequate

communication system, lack of enterprise, want of capital, adherence of the masses to agriculture, etc., did not make it a possible proposition to utilise these rich natural resources to the fullest extent.

INDUSTRY—*Manufacturing industry* has not yet made a considerable progress. Cotton, woollen, cement, iron and steel, and match industries have been developed in the coastal regions and these constitute the chief industries of China. Cotton industry is localised in the Canton and Nanking-Shanghai region ; iron and steel industry in Hankow, Wochang and Hanyang ; pottery in Kemen, Kingchen and Changsha ; flour-milling in Shingta, Ushi, Shanghai and Hankow. The ink factories of Wichow, carpet and rug factories of Paoting, furniture-making of Changsha and the silk factories of Canton are also worth mentioning.

CAUSES OF INDUSTRIAL BACKWARDNESS—China is known to be a *Sleeping Giant*. Her natural resources are considerable and her supply of man-power is great. In spite of her rich natural resources and dense population she is industrially and commercially most backward. The chief factor that has so far hindered her development is (i) *THE UNDEVELOPED NATURE OF HER COMMUNICATION SYSTEM*. She is very much favoured with rivers which would have served her wonderfully as natural highways of commerce. Her three great rivers—the Hwang-ho or Yellow river in the north, the Yang-tse-Kiang in the middle, and the Sikiang or West river in the south—cross the country from west to east, but only the Yang-tse-Kiang is of great service for navigation, the other two being full of rapids and shallows. The Yang-tse-Kiang is the longest and most important river of China. Its long journey through some very fertile and densely populated areas and its easy navigability for 1,000 miles up to Ichang account for its great importance as means of transportation. but above Ichang its course is full of rapids and falls. The value of Hwang-ho, the main river of northern China as transportation agent is not very great, as its upper course is through rocky soil and the lower course is very shallow, thus making free navigation almost an impossibility.

The most important transporting agent in Southern China is the Sikiang which except in some places is freely navigable all through its course. Her roadways is too inadequate. She has altogether 86 331 miles of roadways as against 350 000 miles of roadways in undivided India. The development of railways in the country is also meagre. Her total railway mileage is nearly 14 405 miles against 43 000 miles in undivided India.

Besides her industrial backwardness is in a large measure due to (2) *HER GEOGRAPHICAL ISOLATION FROM THE REST OF THE WORLD*. Surrounded on the land side by mountains and highlands and being far away from the progressive countries of the west she is very little influenced by western ideas, because the existence of the mountains and deserts has very greatly affected the communication system of China. Isolation from the outside world has naturally led to illiteracy of the general mass and consequently the people are totally ignorant of what is happening in other countries. Only in the northern part of the country expansion of rail road has been possible whereas in the south no appreciable development could be made. Due to climatic variations various agricultural crops are grown in sufficient quantities and in the event of a famine in any part of the country the shortage is balanced by supplies from other parts but on account of great distance and want of transport facilities great inconvenience is experienced in the movement of the produce of the west by rail or waterways to the east. In spite of rich mineral resources mining industry has not developed due to inaccessibility. The distance between the coal and iron fields has naturally retarded the development of manufacturing industries. On the land side isolation from other countries has proved a great impediment to foreign trade by land routes. The foreign trade of China is mainly confined to the treaty ports such as Canton Shanghai Kuku Suchow Nampo etc. but these ports are controlled by foreign powers. The exploitation of the mineral and agricultural resources of China by the foreigners for a pretty long time in their own interest utterly disregarding that of China, is another stumbling block to the economic deve-

lopment of China. The foreign powers through these free ports send the natural resources of China as much as possible for the economic development of their own countries. The industry and commerce of the country are to a large measure controlled by these foreigners whose main objective is to enrich their own motherlands at the cost of China. These are the factors contributing to the utter backwardness of China in industrial and economic spheres. *ADHERENCE TO OLD CUSTOMS, THE DISTRUST OF THE FOREIGNERS, THE INDOLENCE OF THE NATIVES, AND THE WEAK AND INCOMPETENT GOVERNMENT OF THE COUNTRY* are also factors responsible for her backwardness.

This was the true picture of China in the industrial, commercial and economic spheres upto the Second World War. After the war a mass revolution took place in China under the leadership of General Mao-Tse-Tung resulting in the establishment of a communist government. The phenomenal success in the political, social and economic spheres which this new government has attained within such a short period naturally tends to confirm the belief that she will in the very near future establish herself firmly as a great country in the industrial and commercial fields of the world.

TRADE AND COMMERCE—The foreign trade of China is not very great. Her principal exports are silk, cotton, tea, antimony, tungsten, coal and iron ; and her principal imports comprise cotton piece-goods, woollen goods, hardware, machinery, chemicals, paper, etc. Most of her foreign trade is with Japan, United States of America, and Great Britain.

China has some treaty ports which are also her chief industrial centres. *SHANGHAI* is the most important port of Northern China. Situated on a tidal creek near the mouth of the Yangtse-Kiang, it serves an extensive hinterland spreading over the whole Yangtse-Kiang basin. It is also an important industrial centre. Ship-building industry is important. *HONGKONG* is an important port and the principal collecting and distributing centre for the whole of Southern China. It is an island port situated 20 miles east of the mouth of the Pearl and 91 miles south of

Canton Silk, tea cotton soyabean and leather are exported, and cotton textile goods hardware, machinery and sundry manufactured goods are imported through this port. Hongkong is a British colony and an important naval and military station. It carries on an extensive entrepot trade for the far Eastern countries. *CHUNGKING* situated on the Yang tse Kiang, is the chief town and industrial centre of Szechwan and the present capital of China. *NANKING* the former capital of China is a river port. It is situated very close to the mouth of the Yang tse Kiang river. Canton is an important port situated on the mouth of the Si Kiang in Southern China. It serves as an outlet for the products of the Si Kiang basin. Silk and rice are chiefly exported through this port.

JAPAN (NIPPON)—The Japanese empire comprised a group of islands situated on the east of the mainland of Asia. Her defeat in the war of 1939-45 led to the loss of much of her territories. At present the empire consists of four main islands of Honshu Kyushu Shikoku and Hokkaido (Yezo) together with a few small adjacent islands. It occupies an area of nearly 157 000 square miles less than that of either France or Germany. With the exception of the plain of Tokyo the whole of Japan is mountainous. Earthquakes and typhoons are serious bane to her internal economy.

CLIMATE—The climate on the whole may be said to be monsoonal with summer rainfall and winter drought. Due to the mountainous nature of the country and the widely varying latitudes of the different islands it ranges from long severe winters and short, cool summers in Hokkaido to subtropical in central and southern Honshu and Shikoku. The warm Kuro Siwo current flows by the east coast of Japan but due to the existence of high mountains from north to south the effect of this warm current is not felt in the west coast. It follows then that the climate of the west coast is more extreme than that of the east. In winter, due to the Kuro Siwo current flowing through the sea of Japan, the severity of cold is less in the southern part of Japan, but the winter is more severe in the northern part on account of the cold Kurile current. In the north and north-

western parts rainfalls occur in winter. In the summer although the temperature becomes high in the southern part the severity is much less felt owing to heavy rainfall in the south and south-west parts under the influence of the monsoon. On the whole, it can be said that the northern part of Japan experiences cold climate while in the southern part temperate climate prevails.

The diverse climatic conditions have considerably contributed to the development of Japan. The warm Kuro Siwo current keeps the Japanese harbours ice-free. The cold climate of the north favours the growth of coniferous forests and these forests are one of the best natural assets of Japan. The warm and damp climate of the south has helped Japan to be one of the leading rice-growing regions of the world. The dry climate of the lake area with two rainy seasons in the year has made continuous cultivation of mulberry trees possible with the result that the lake area has become one of the biggest silk-producing regions of the world. The heavy rainfall on the hill slopes has helped the development of cheap hydro-electricity in Japan. The cold enervating climate has made the Japanese one of the most energetic nations of the world perfectly sound both mentally and physically.

Japan is a very densely populated country with a population over 83 millions. But the distribution of her population is very irregular. It has been greatly influenced by her climatic and relief features. Most of the population is concentrated in the coastal lowlands and fertile plains in the warmer south. The density of population per square mile is 587·8.

Japan is said to be the "GREAT BRITAIN OF THE EAST". Both Britain and Japan are groups of islands. Both are located in the temperate zone, one on the north-west terminus and the other on the north-east terminus of the continental land mass of Eurasia. Both the countries have mountains running north-south with fertile plains on the east. The warm ocean currents (the Gulf Stream and the Kuro Siwo) wash the shores of both and keep the climate warm. No part of both the islands is more than 100 miles off from the sea. Both the countries

have identical economic industrial and commercial development and are great naval powers

In the course of fifty years (since China-Japan war of 1894-95) Japan has made great progress in the matter of industrial development. In recent years she is one of the foremost industrial countries of the world. *THE CAUSES ACCOUNTING FOR SUCH PHENOMENAL DEVELOPMENT ARE MANY*, some of which are as follows —

(1) *INSULAR POSITION*—Her insular position makes her different parts easily accessible to the sea. It also helps in providing maritime climate favourable for her industrial growth.

(2) *ABUNDANT POWER RESOURCES*—Her coal and petroleum production may be insignificant with reference to world output but in proportion to her size it is adequate to meet her requirements. Besides she is very much advanced in the matter of supply of hydro electric power. Her mountainous relief and swift running streams and the heavy rainfall account for her highly developed nature of hydro-electric installations. Most of them are located in the main island. Most of the industries in Japan are run by hydro-electric power which contributes 60% of the total output of her electric energy.

(3) *PROXIMITY TO RAW MATERIALS AND ABSORBING MARKETS*—Her favourable geographical location in relation to China and undivided India greatly facilitates the procurement of raw materials for her industries and also the disposal of her finished products.

(4) *EFFICIENT LABOUR FORCE*—The labour is efficient and cheap. Its supply is also great.

(5) *INDENTED COASTLINE*—Japan has 17 000 miles of coastline which gives her a ratio of one mile of coast to every nine square miles of land. Fortunately her coastline is very much broken and has favoured the growth of many natural ports.

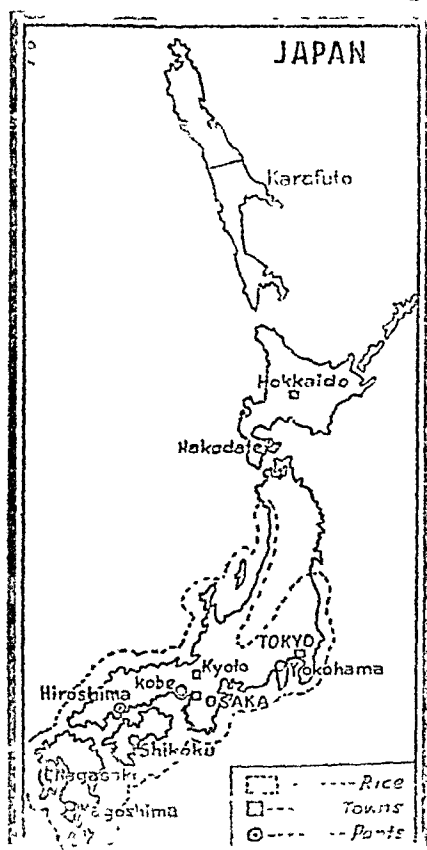
(6) *GOVERNMENT PATRONAGE*—Her government takes great care for her industrial growth.

AGRICULTURE—Agriculture constitutes even now the principal occupation of the people and over 44 per cent

of the available labour is engaged in agriculture. The mountainous nature of the country makes only one-sixth of the land available for cultivation. The soil is fertile and the climate is favourable. Intensive cultivation is practised wherever possible. The principal agricultural products in order of importance are rice, wheat, barley, rye and soyabeans. Rice is the staple food and the principal crop. It is grown almost everywhere, but in spite of its high production Japan is the largest importer of rice because of her abnormally high density of population. Mulberry plants, whose leaves are required for feeding silk-worms, are grown. Tobacco and cotton are also important. Rice, tea, cotton, tobacco and silk are raised in the warmer south. Wheat, barley, rye and soyabeans are grown chiefly in the northern regions.

PASTORAL INDUSTRY has not developed. Pressure of population on land and its more otherwise profitable uses make grazing lands difficult to find.

FISHING INDUSTRY is important. The broken coastline of



Japan provides the Japanese with good natural harbours and the warm and cold currents near its coast provide favourable condition for fish. The sea of Japan is, therefore, very rich in fish. Due to the convergence of the cold and warm currents the coast of Japan has become one of the finest fishing grounds of the world. More than two millions of her population are engaged in this industry, and she is easily the leading country in the world. Most of her catch is meant for local consumption, very little being available for foreign trade. In the absence of farm manure her fisheries are important in yielding not only food but also fish-manure. Cod, herring, sardines, bonitos and yellow-tail are her principal catch.

Japan (Agricultural)

LUMBERING INDUSTRY is important. About one half of her land surface is covered with forests. The principal forest products are camphor, lacquer, bamboo, wax and timber. Most of the forests are of soft wooded variety of which pine, cedar, beech and camphor are important.

MINERALS—Japan is not very fortunate with reference to the supply of *MINERALS*. Although coal, iron, gold, silver, copper, lead, zinc, manganese, sulphur, antimony, petroleum, etc., are found in many places, the output is not adequate to meet the actual requirements of the country and Japan has to depend on foreign supplies to maintain her industries. Of the minerals the most important is *COAL*. Her principal coalfields are located in northern Kyushu and Hokkaido. The quantity of anthracite coal is very small. The iron and steel industry of Nagasaki consumes whatever good quality coal is obtained and coke has to be imported for domestic consumption. *COPPER* is another important mineral produced in Japan and she is the eighth largest producer in the world. It is found in Hokkaido, Shikoku and Honshu islands, but the copper mines of Ashio near Tokyo in the mainland produce the largest amount. Japan is also rich in *GOLD*. Copper has enabled Japan to develop her electrical industries while her gold reserves have helped her in the purchase of the raw materials necessary for her industries. It is mined in Kyushu and Hokkaido. *PETROLEUM* is found in western Honshu and Hokkaido. Some quantity of petroleum is also mined in Hokkaido. Nagata and Akita are the two important petroleum mining regions in Japan. Japan is deficient in *IRON* and her iron mines are for the most part not easy of access. Iron mines are worked in northern Honshu (Sendai) and southern Hokkaido (Mororan). The production being very small, she has to import iron ores from India, Manchuria and Malaya. She is an important producer of sulphur and kaolin or China clay. High class kaolin is found in Aichi and Saga. Its abundant availability has greatly helped the development of porcelain and pottery industry in Japan.

The development of *MANUFACTURING INDUSTRIES* in Japan is considerable. She has made phenomenal progress particularly in textile industries in recent years. The principal industries are the manufacture of cotton, silk and woollen goods, rayon, shipbuilding, paper, porcelain, glass, match, chemicals and toy making. The *COTTON INDUSTRY* is by far the most important. The principal seats of this industry are Osaka, Kobe and Tokyo. Osaka is popularly known as the "Manchester of Japan". *Her favourable humid climate, cheap hydro-electric power, cheap and efficient labour, and good ports have contributed greatly* to the development of this industry. Raw materials are mostly procured from India, Pakistan, China, Korea, Egypt and the U.S.A. without any difficulty. The neighbouring Indian and Chinese markets serve as her customers.

NATURAL SILK industry is one of the most important industries of Japan. She is the second largest producer of raw silk, China being the first in order of production. The silk industry is mostly centred near about Tokyo, Kyoto and Osaka. Some raw silk is imported from Korea and China. Encouraged by the success of the cotton textile industry she took to *WOOL* spinning and weaving industry. At present she is an important wool-manufacturing country. The entire raw material is to be imported and over 90 per cent. of the wool imported is obtained from Australia. The woollen industry is localised in Tokyo, Osaka and Nagoya. Recently it has also developed in Aichi.

Japan is the second largest producer of *RAYON* in the world. *The phenomenal development of her chemical industries, abundant supply of soft-wood from her forests, and cheap hydro-electric power* have greatly helped the development and growth of this industry. The principal seats of the industry are in the cotton textile districts. Tokyo is an important centre.

Japan is deficient in iron ores, yet for strategic and defensive reasons she has built her *IRON AND STEEL INDUSTRY* in Kyushu and Hokkaido with the aid of imported iron ores from China and India. Shipbuilding industry is developed at Kobe and at Nagasaki in Kyushu.

She has long been famous for her *PORCELAIN*. She has large deposits of Kaolin which give fillip for the development of that industry in Aichi and Saga. The supply of wood and wood-pulp in abundant quantity from her forest resources has helped her to develop her *MATCH* and *PAPER INDUSTRIES*. These industries are decentralised in the various parts of the country. She is also noted for her *TOY MAKING INDUSTRY*. Cheap hydro electric power and an abundant supply of timber are incidental to the development of this industry in the homes of the labourers.

COMMUNICATION—In spite of the extremely mountainous character of the country considerable progress has been made in the *communication* system. Altogether she has over 600,000 miles of roadways. Her railway route exceeds 15 000 miles. The bulk of her railways are limited to the level land along the coast. The Japanese rivers are too small and too rapid to provide effective water transportation.

TRADE—The extent of her foreign trade is great and its value amounts to over 500 million pounds. Most of her foreign trade is with U.S.A., Manchukuo, India and China, while Great Britain, East Indies and Australia have also a considerable share. Her principal exports are cotton piece-goods, raw silk, silk goods, rayon, porcelain and glassware, chemicals, paper, match, rubber goods and machinery. Her imports comprise rice, raw cotton, wool, sugar, rubber, coal, iron and other metals.

PORTS AND TOWNS—The principal ports and commercial centres are situated on the coastal plains. *TOKYO*, situated on the Bay of Tokyo in the main island, is the capital and most important trade centre of Japan. It is the most densely populated town of Japan with a population of over 62 lakhs and is the third largest city in the world on the basis of population. *YOKOHAMA* is her principal port doing more than half of her foreign trade. It has a deep and spacious harbour accessible to the biggest ocean-liners. It is the port of Tokyo region. *OSAKA*, the Manchester of Japan, is her most flourishing industrial centre. It is the centre of her textile industries. Besides, it is important for porcelain.

glass and leather industry. It is well-served by railways and waterways. *KOBE*, situated close to Osaka, is its outport and is the second largest port of Japan. It is also an important centre of textile trade and is primarily concerned with the import of cotton. *NAGASAKI*, situated on the west coast of Kyushu, is a natural port. The shipbuilding industry is very important. Iron and steel, engineering and machinery industries are also important. *NAGOYA*, situated on the Bay of Ise in the south coast of Honshu is important for manufacturing of textiles, porcelain and earthenwares. *KYOTO* is important for her silk industry.

KOREA OR CHOSEN—It formed a part of the Japanese empire since 1910 and remained under Japanese colonial administration for 35 years. Following the surrender of Japan in 1945 America and Russia took possession of Korea dividing the country for military convenience into two portions separated by the 38th parallel of latitude, Russia occupying the north while America the south. The Allied Powers pledged themselves to restore Korea to complete independence after a 5-year period of Allied tutelage and trusteeship, but negotiations between the Americans and Russians regarding the initial step broke down in 1946 and the 38th parallel now completely separates the two zones. Although the two zones have separate governments the administration is virtually influenced and controlled by America and Russia. The country is a large mountainous peninsula between the Yellow Sea and the sea of Japan. Its area is 85,266 sq. miles and its population is 25,120,174. North Korea has an area of 40,114 sq. miles and a population of 9,241,064 whereas South Korea has an area of 36,152 sq. miles and a population of 15,879,110. The former is comparatively well-developed in manufacturing industries while the latter is highly agricultural. In Korea mountains run along the east coast and consequently the west coast is lower. The climate is tropical monsoonal with summer rainfall. It is essentially an *agricultural country*, the total acreage under cultivation being 11 millions. Rice, barley, oats, wheat, soyabeans, tobacco and cotton are largely grown.

Its production of agricultural crops is more than is needed for home consumption. Silkworm-rearing is also carried on and it produces large quantities of raw silk. Pastoral industry is not very important. Livestock is raised as a bye product of agriculture and it consists of milk cattle, work cattle, horses, mules, donkeys, pigs and sheep. Fishing is also important.

Korea is rich in minerals. Iron, coal, gold, graphite, wolfram, mica, copper, silver, zinc and molybdenum are found. Exploitation of its mineral deposits is greatly impeded by inaccessibility to such regions. Gold mining is almost a monopoly of the American zone, while iron and coal are found in abundance in northern Korea. Although fairly large quantities of anthracite and lignite coal is found in South Korea, it lacks in the production of iron ore in commercial quantities. Besides copper, graphite, molybdenum, manganese, Kaolin, silver, etc. are also mined in South Korea.

'Industry was intensively developed by the big Japanese concerns, notably cotton spinning, hydro-electric power and cotton, silk and rayon weaving.' The nitrogenous fertiliser works and the allied chemical factories are its principal industries. Cotton-manufacturing industry and silk industry have been well developed.

Transport in the interior is by rail, road and river.

Over 80% of the foreign trade is with Japan. Rice, silk, cotton, coal, iron and gold are its principal exports. Cotton textile goods, hardware, machinery, fertilisers, oil, silk goods, coal, paper, sugar and chemicals constitute its chief imports.

Fusan, situated in the south-east, is the chief port and Seoul on the west coast is the capital of Korea.

FORMOSA or TAIWAN was a Japanese possession before the Second World War. After the war the island was returned to China and is now under Chinese National Government. It is a mountainous island situated on the Tropic of Cancer and is separated from China by the Strait of Formosa. It covers an area of 13,890 sq. miles with a population of 6,083,617. The central and eastern parts of the country are mountainous.

while the western part is flat. Climate, on the whole, may be said to be tropical monsoonal with summer rainfall. *Agriculture* is the chief occupation of the people and it has developed well in the western part of the country. Rice, tea, maize, sugarcane, tobacco and oilseeds are the principal agricultural crops. Silkworm-rearing is carried on and large amount of raw silk is raised. *Lumbering industry* is important. It is the world's largest producer of camphor. *Minerals* like gold, silver, copper, coal and petroleum are present but their exploitation is not great.

Its principal exports are rice, sugar, tea, camphor and raw silk and its imports consist of cotton piece-goods, hardware, machinery and chemicals. Its foreign trade is mainly with Japan. *Taiboku*, situated on the west, is the chief town and principal port.

MANCHUKUO, formerly known as Manchuria, is a Japanese-sponsored independent state with Sinking as its capital. It covers an area of 503,013 sq. miles with a population of 43,233,954. Its neighbouring states are Russia, China, Korea and Mongolia. Manchukuo is built up of two mountain ranges running from north to south. The climate is of the extreme type especially in the north. Rainfall occurs in summer, brought by the south-east monsoon.

Manchukuo belongs to monsoon regions with summer rainfall and winter droughts. Although mountainous, Manchukuo is essentially an *AGRICULTURAL COUNTRY*. Its soil is said to be one of the richest in the world. In spite of the fact that winter is severe and the summer rainfall is fairly heavy the temperature is quite favourable for the production of wheat and soyabean. In the flat plains, particularly in the north, wheat, rice, millets, groundnuts and soyabeans are extensively grown. Other important crops are cotton, sugar-beet, tobacco, hemp, fruit and opium. Soyabean is the chief crop and Manchukuo produces nearly half the total produce of the world. The mountains on the east and west are rich in valuable forests. *Pastoral industry* is also important, and cattle are reared in the rich pastures of the N.-W. grasslands. Manchukuo is rich in *MINERAL DEPOSITS*. Iron, coal, gold and magnesite are found. Gold

exists in the Amur and Teling valleys; good quality coal in Fushin, Delairor, Shansing, etc., iron ore in Yentas and Lisotang, and petroleum in the regions near Fushin coal fields. Mining industry made steady progress under the supervision of the Japanese. *MANUFACTURING INDUSTRIES* have developed considerably in the whole of Manchukuo particularly in its southern part, due to abundance of agricultural forest and mineral raw materials, but the majority of the industries is under foreign control.

DUE TO STRATEGIC POSITION AND THE EXCELLENT SOURCE OF INDUSTRIAL RAW MATERIALS, CHINA RUSSIA AND JAPAN ARE ALL EQUALLY INTERESTED IN ESTABLISHING INFLUENCE IN MANCHUKUO China is interested because in proportion to the overwhelming population the arable land available in China is much too insignificant and a hold on Manchukuo would solve the problem of food and shelter for her surplus population. The rich forest resources of Manchukuo have attracted innumerable Chinese immigrants to settle in Manchukuo. The idea of the sole use of the ice free ports of Port Arthur Newchang and Dairen on the Pacific coast has attracted the attention of Russia towards Manchukuo. Japan's interests, however, manifold, the principal ones being as follows —

(1) Japan feels terribly the pressure of rapidly increasing population and the sparsely populated Manchukuo might provide a field for Japanese colonisation.

(2) Manchukuo lies between Japan and Russia. If ever a war breaks out between these two countries Manchukuo can be used by Japan as the first line of defence against Russia.

(3) The immense agricultural, mineral and pastoral resources of Manchukuo can provide Japan with ample raw materials necessary for the development of her various industries. Moreover, Manchukuo would prove to be the best market for Japan's finished products.

Railways have played an important part in the development of Manchukuo. The state highways cover 3960 miles. Rivers are not so important as they are mostly frozen in winter months.

The principal exports of the country are soyabbeans, coal, iron and gold and its chief imports are cotton piece-goods, hardware, paper, chemicals, etc. Most of its foreign trade is with Japan and China. *Dairen* is the chief port and important trade centre. *Mukden* is the largest town and the chief industrial and commercial centre of Manchukuo.

THE EAST INDIES, situated south of the Malaya Peninsula and the Phillipine Islands, comprise a long chain of islands. They include Java, Sumatra, Borneo, Celebes, the Moluccas or Spice Islands, Timor, Bangka, Billiton, Bali and many other small islands. Politically the East Indian Islands were dependencies of European powers; most of these islands belonged to Netherlands. Recently those of the East Indian Islands which belonged to Netherlands are independent and they constitute the United States of Indonesia. At present only northern Borneo belongs to Britain and the east of Timor to Portugal. They are for the most part mountainous. Being situated between 6° N. and 11° S. latitude they experience equatorial type of climate.

The East Indies are very rich in natural resources. They are the third largest producer of coffee, sugar-cane and tin; the second largest producer of rubber; the nonopoly producer of cinchona, and the sixth largest producer of petroleum in the world.

JAVA is the most important of the islands. It is the most densely populated country in the world, population per sq. mile being over 817. Nearly 60 per cent. of the total population of the East Indies are concentrated in Java. It is essentially an agricultural country. Its fertile volcanic soil together with equatorial climate makes extensive cultivation possible. Rice, maize, sugar-cane, tea, rubber, cinchona, coffee, tobacco and oil-seeds are extensively grown. *BATAVIA* situated in the north-west is the chief town and port of Java. *SURABAYA* is another important port located in the north-east. *Jogjakarta* is the capital of the present Indonesian Government.

SUMATRA produces tobacco, rubber, rice, sugar-cane, coffee and oilseeds. Petroleum, silver and coal are present. *PALEM-BANG* in the south-east is an important oil centre.

Indonesian BORNEO is noted for copra, sago, rubber and petroleum. *Tarakan* is important for oil. British Borneo produces rubber, tobacco, camphor, guttapercha, etc. Coal, petroleum and gold are found. Petroleum is the most important mineral and is worked in Sarawak.

The MOLUCCAS is noted for spices. Tin is found in Bangka, Billiton and Singkep.

THE PHILIPPINE ISLANDS, formerly a United States Commonwealth, has recently become independent. The Republic of the Philippines is composed of very many small islands of which Luzon, Mindanao, Mindoro, Leyte and Cebu are important.

The Philippine Islands are for the most part mountainous and volcanic. The climate is of tropical monsoonal type with summer rainfall. Agriculture is the principal industry. Over 40 per cent of the land is suitable for cultivation, but as yet only 15 per cent of the land is put to agricultural use. Sugar cane, tobacco, manila hemp, copra, rice, maize and bananas are the principal agricultural products. In the production of manila hemp, copra and cocoanut oil the islands are easily the foremost producers in the world. The *mineral wealth* is considerable. Gold, silver, petroleum, copper, coal, iron, manganese, asbestos and chromium are present. Petroleum mines are worked in Cebu, Leyte and Mindanao. Gold is found chiefly in Luzon, Mindanao and Masbet islands. *Lumbering industry* is important. Nearly 60 per cent. of the land area is covered with forests. Manufacturing industry is not so developed. Cocoanut oil mills, rice mills, cigarette factories, sugar mills and leather and shoe factories are the only industrial establishments. Recently one cotton mill has been established.

The principal exports are sugar, copra, cocoanut oil, manila hemp, tobacco, gold and timber and the chief imports include cotton piece-goods, hardware, chemicals and machineries. Foreign trade is mainly carried on with the U.S.A. and Japan. *MANILA* situated on Luzon, is the capital and chief port of the Philippine Islands.

THAILAND (Siam) is a highly mountainous country. Its area is over 200,000 sq. miles and its population exceeds little over 17 millions. It is an independent country. Its climate is monsoonal. *Agriculture* is the chief occupation of the people and over 80 per cent. of the people is engaged in agriculture. Rice, copra, tobacco, oilseeds and rubber are its principal products. *Lumbering industry* is important. Much of upper Thailand is covered with dense forest, and the teak is its principal product. Much of teak is exported. Nearly 60 per cent. of the land area is covered with forests. It has considerable *mineral wealth*, of which tin, wolfram, copper, gold, silver, iron and lead are important. In lower Siam tin and wolfram are being worked on a commercial scale.

The principal exports are rice, tin, rubber and teak and its imports include cotton piece-goods, chemicals, hardwares, etc. *BANGKOK*, situated on the Menam, is the principal port and chief commercial centre.

INDO-CHINA occupies an area of about 286,000 square miles and has a population over 27 millions. Politically it is divided into *two* zones—(i) Vietnam and (ii) *French Indo-China*. The western part (Cambodia and Laos) of Indo-China which is a backward hilly tract is under the French control. The rest comprising Tongking, Annam and Cochin-China constitute the newly formed state of Vietnam. Its climate is monsoonal. It is primarily an *agricultural* country. Rice, tobacco, maize, sugar-cane and tea are largely grown. *Forests* are important in the high mountain ranges in the north. Rich *mineral deposits* are known to be present. Of the minerals coal, zinc, tin and wolfram are worked. Much raw silk is also produced. Its principal exports comprise rice, rubber, fish, coal and timber. *Hanoi* is the capital and *Saigon* is the chief port of Indo-China.

MALAYA constitutes a long narrow peninsula in the south-eastern Asia. It has *three* political divisions : (1) *The Strait Settlements* which include the island of Penang, Province of Wellesley, Malacca, Labuan and some other minor islands ; (2) the Federated Malaya States which include Perak, Selangor

Negri Sembilan and Pahang, and (3) the Unfederated Malaya States which include Johore, Kedah, Perlis, Kelantan and Trengganu

MALAYA is a mountainous country and, being situated within latitude 8° N enjoys the equatorial type of climate. *Agriculture* is of primary importance. It is the foremost producer of rubber in the world, producing over 50 per cent of the world's supply. Cocoanuts, sago, rice, spices and tobacco are extensively grown. Pineapples and bananas are also important. *Lumbering industry* is important. The equatorial climate has favoured luxuriant forest growth in the mountainous districts and bamboo, cane, timber and guttapercha are the chief forest products which are largely exported. *Mining industry* is also important. It is the foremost producer of tin in the world, producing over 30% of the world's total production. Tin mining is carried on mainly in Perak, Selangor, Negri Sembilan and Kedah. Gold, tungsten and coal are also present.

The principal exports are rubber, tin, copra, pineapples, timber, guttapercha, cane and sago. The principal imports comprise cotton, piece-goods, hardware, chemicals, etc. Its foreign commerce is mainly with the United Kingdom.

SINGAPORE is situated on an island of the same name at the southern end of the Malaya Peninsula. It was formerly a part of the Straits Settlements but since 1946 it became a separate Crown colony. The seat of the government is the town of Singapore. *Singapore* is a magnificent natural harbour and commands a very large volume of entrepot trade. *Penang* on the island off the north west coast, is another important port.

CEYLON, situated south of India in the Indian Ocean, was formerly a British possession. Since 1948, it is a full fledged independent country. The island is lying between 5° and 10° N latitude and enjoys for the most part equatorial type of climate. Its physical features comprise a central mass of mountains with surrounding coastal plains. It has an area of 25,332 sq miles and its population exceeds 8 millions.

Ceylon is primarily an *agricultural* country. Nearly 20% of the land is cultivated. Rice, rubber, tea, coffee and cocoa are the principal products. Cocoanuts and cinnamon are also grown. *Forests* are important and cover another 20% of the land surface. Tropical hardwoods are important. The country is not very rich in *mineral* deposits. Little amount of iron and graphite are found. Mining of precious stones like rubies, sapphires, topaz, etc. is important. Besides ilmenite, monazite and zircon are also found in the coastal regions. *Manufacturing industry* is not so developed. Recently cotton textile, paper, chemical and iron and steel industries have been developed.

The principal exports are tea, rubber, copra and coconut oil and the imports comprise rice, coal, cotton piece-goods and sugar. *Colombo*, the capital and chief port of Ceylon, is situated on the south-west coast of the island. It is also the centre of the Ceylonese railway system. *Kandy*, situated on the central high-land, is an important town. *Jaffna*, situated on the Jaffna peninsula in the north, is an important town. It is connected by railway with Colombo.

India and Pakistan—*Vide* author's *Handbook of Economic Geography*, Vol. II for detailed study.

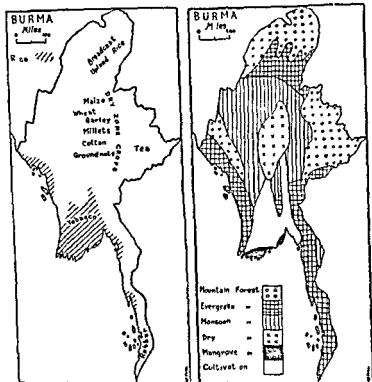
BURMA—Burma lies east of India. It has an area of 261,610 sq. miles with a total population of 18,674,000. Politically it formed a part of the British Indian Empire. In 1937 it was separated from India. It has gained full-fledged independence in 1948.

Burma is a highly mountainous country. The northern part of Burma is full of steep mountains running in parallel ranges in a general north-south direction. Towards the south these ranges open out and form the Arakan Yomas, the Pegu Yomas and the Shan Hills. The Tenasserim Yomas run along the coast, south of Moulmein. The valleys of the Irrawady and the Sittang comprise level lands of high fertility.

The climate of Burma, like that of India, is monsoonal with wet summers and dry winters. But the rainfall is not well distributed throughout the country. The coastal regions and the

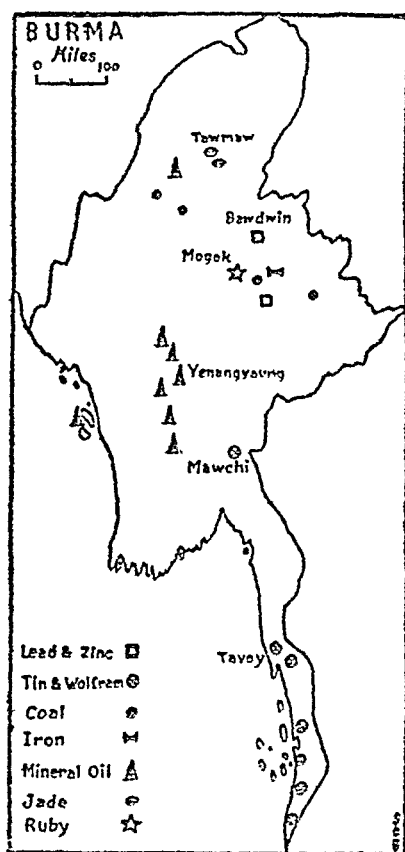
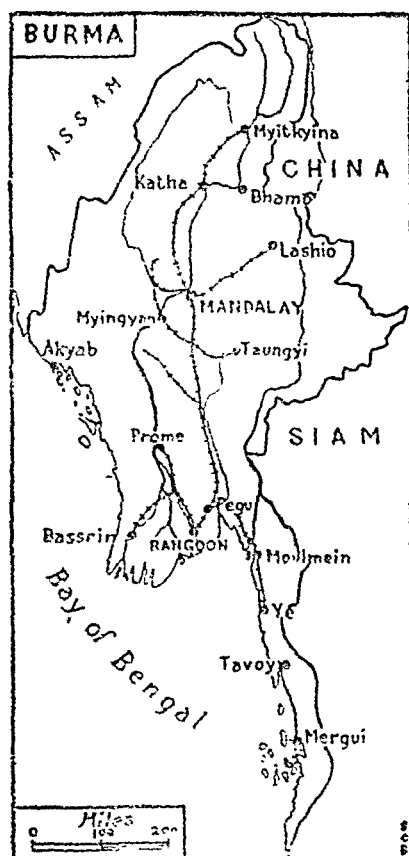
mountainous districts of the interior experience the heaviest rainfall

Agriculture is the principal occupation of the people in Burma. The mountainous nature of the country makes 10% of



the land available for cultivation. The valleys of the Irrawaddy and the Sittang comprise the most important agricultural zone and produce rice, maize, sugar cane, tobacco and oilseeds. Tea, rubber, cotton, wheat, millet and pulses are also grown. Tea is raised chiefly in the Shan States and rubber in Tenasserim. Cotton, wheat, millet and pulses are grown in the relatively dry regions of the upper and central parts of the Irrawaddy valley. Rice and tobacco are the principal crops and constitute the principal items of exports.

Lumbering industry is important. Nearly 60 per cent. of the total area is devoted to forests, Teak, sal and pingado are the principal trees grown. They are chiefly found on the Arakan



Yomas, Pegu Yomas and the Tenasserim Yomas. Burma is also well known for her bamboos and canes which are largely grown in her coastal regions.

Mineral wealth of Burma is great. Her principal minerals are petroleum, tin, silver, lead, zinc, wolfram, coal and rubies. Petroleum is raised from the oil-fields of Yenangyaung and Singu in the Irrawady basin. Oil is carried by a pipe line to Rangoon where it is refined. Tin, wolfram and coal are mined in Tasserim. Lead, silver and zinc are mainly found in the

Bawdwin district in the Shan States Rubies are mined at Mogok in the Irrawady basin

Manufacturing industries have not developed greatly in Burma Silk weaving cigar making and petroleum refining constitute its principal industries

The development of the means of communication is not great Of the rivers the Irrawady is navigable from its mouth to Bhamo a distance of 900 miles from the sea The Sittarg is often blocked by sandbanks and is of little use for navigation The Salween though a much longer river than the Irrawady, is navigable for a short distance only because it flows over a rocky bed The Chindwin a tributary of the Irrawady is navigable for 300 miles Roads are ill developed and the railway development is meagre From Rangoon the railway (723 miles) runs via Mandalaya to Myitkyina From Mandalaya a branch line runs up to Lashio from where the Burma Road leads into Yunnan in China Another line (161 miles) from Rangoon goes to Prome The Burma-Siam Railway has recently connected Rangoon with Bangkok via Moulmein.

The principal exports are timber oil tobacco rice rubber, hides and skins tin, tungsten silver lead etc The imports comprise textiles hardware machinery chemicals liquor sugar etc

Rangoon is situated some 20 miles away from the sea on the Rangoon river and is the chief port of Burma handling over 80% of the foreign trade of the country It has an extensive hinterland extending over the whole of the fertile valley of the Irrawady It is well served both by railways and waterways The line directly serving Rangoon is the Burma Railway which connects it with the interior regions of the Irrawady and Sittang valley Owing to its position at the head of an estuary it can conveniently receive the products of the interior by water routes as well Rangoon is not only the chief port of Burma but it is also the headquarters of the government the railways and all other large businesses The chief exports are rice timber, tobacco oil paraffin, wax, cotton, metallic ores hides and skins etc Its

imports consist of cotton and woollen manufactures, hardware, machinery, sugar, coal, chemicals, cement, etc. *Akyab* is an important port on the Arakan coast. It is noted for export of rice and timber. *Moulmein*, situated on the mouth of the Salween, is another important port of Burma. It is connected with Rangoon by rail route. Tobacco, timber, rubber, etc. are exported through this port. *Mandalaya* is a river-port situated on the Irrawady bank. It is an important collecting centre of rice and silk. It is connected with Rangoon by railway.

CHAPTER XVI

EUROPE

INTRODUCTION—Europe which occupies the western part of the main land mass of *Eurasia* is the smallest of the continents excepting Australia. It is separated from the continent of Asia by the Ural mountains the Ural river the Caspian Sea in the east and the Caucasus mountains and the Black Sea in the south-east. Its total land area is 3 900 000 square miles and is nearly equal to one-fourth that of Asia. Europe excluding Russia is equal to undivided India in size and in area it represents 4% of the land area of the world.

Politically Europe is divided into many independent states. No other continent is divided into so many political divisions. In Europe there are at present 26 Sovereign states. Their names with approximate areas in square miles and population are given below —

COUNTRIES OF EUROPE

AREA AND POPULATION

<i>Countries</i>	<i>Area in sq miles</i>	<i>Population</i>
1 United Kingdom	94 633	50 369 809
2 Irish Free State	26 600	2 958,878
3 Germany ..	181 630	69 314,112
4 France	212 659	42 369 000
5 Belgium	11 775	8 703 119
6 Holland	12 712	10 328 343
7 Denmark	16 575	4 281,275
8 Norway	124 556	3 278 546
9 Sweden	173 403	7 044 039
10 Finland	134 457	3 695 617
11 Poland	120 360	24 976 920
12 Rumania	91 671	16 409 367
13 Hungary	35 912	9 313 000
14 Austria	32 369	6 933 905

<i>Countries</i>		<i>Area in sq. miles</i>	<i>Population</i>
15. Czechoslovakia	..	51,244	12,513,000
16. Switzerland	..	15,944	4,714,992
17. Spain	..	194,232	27,976,755
18. Portugal	..	35,490	8,441,312
19. Luxembourg	..	999	298,578
20. Italy	..	199,764	47,138,235
21. Yugoslavia	..	95,576	15,772,098
22. Bulgaria	..	39,825	7,290,000
23. Greece	..	51,246	7,603,599
24. Albania	..	10,629	1,210,000
25. Turkey (European)	..	9,416	1,626,229
26. U.S.S.R.*	..	8,708,070	193,200,000

POPULATION—The total population of Europe exceeds 500 millions and is about one-fourth of the total population of the world. But the distribution of the population is very uneven. The density of population in the industrial regions of Great Britain, Belgium, Germany, France and Italy, and the fertile agricultural zone of Ukraine and the Danube basin, is the heaviest. On the other hand, the population in the extreme north, the mountainous regions, and the interior of Russia is sparse. The average density of population per square mile for the whole of Europe is exceptionally high and exceeds over 130 as against 65 of Asia.

PHYSICAL FEATURES—On the basis of relief the surface of Europe can be divided into (1) *The North-western Highlands* comprising the west coast of Scandinavia, the Scandinavian highlands, the Scottish highlands and the region extending from Cornwall and Brittany to the central uplands of Europe including the Black Forest and the Vosges. In some places the height of this highland ranges between 5,000 ft. and 8,000 ft. Many parts of the mountainous regions, composed of age-worn hard rocks, have been transformed into plateaus under the influence of nature. (2) *The Central Plain* covering the region from

* U.S.S.R. includes European and Asiatic Russia together with the Baltic states and a part of Finland (acquired in 1940).

Ireland in the west to Asia in the east and from North Russia and Low Countries in the north to northern France and European Russia in the south. In this plain there exist here and there hills, glacier fed lakes and swamps. On the whole, it comprises parts of England and Ireland, northern France, Poland, Belgium, Holland, Denmark, southern Sweden and Russia and (3) *The Southern Highlands* extending from the Carpathians in the east to Spain in the west in south of the Central Plain. This region is full of fold mountains and plateaus. The famous Alpine knots—the backbone of the mountain ranges of Europe—lie here.

COASTLINE—Roughly speaking Europe is a peninsular part of the continent of Eurasia. The Baltic, the Mediterranean, the Adriatic and the Black Seas have penetrated far into the interior. Hence, in proportion to its area the continent has the longest coastline. Altogether the total coastline is nearly 20 000 miles, i.e., for every 200 sq. miles of area there is one mile of coast. Besides, the coastline of Europe is very much broken and indented, thereby helping the growth of good many ports. With the exception of eastern Russia no part of this continent is more than 500 miles away from the sea.

CLIMATE—The whole of Europe is situated outside the tropical zone and the climate is on the whole moderate. The climate of Europe, however, varies according to the location of the individual zones, proximity to and distance from oceans and seas, influence of ocean current, wind and rainfall, and variations in relief. Thus we find that the temperature rises gradually from north to south according to the wide range of latitude. The extreme north is a cold desert, but in the extreme south the Mediterranean region experiences mild winters and hot summers. Due to sea influence much warmer winter climate prevails in western Europe than that enjoyed by the eastern Europe in the same latitude. "Temperature decreases from west to east in winter and increases from west to east in the summer months so that eastern Europe has an extreme type of climate cold in winter and hot in summer, as compared with the equable or oceanic climate of the west."

On the basis of climate the continent can be divided into *five* broad regions :—

(1) *The Mediterranean Regions in the South and South-west* which comprise a portion of Spain and Portugal, southern part of France, Italy, the Balkan Peninsula, and the Mediterranean islands. Scanty rainfall characterises the summer with consequent rise in temperature, while the winter, although wet, is more or less mild.

(2) *The Temperate Oceanic Regions in the North-west* which include West Norway, Denmark, Holland, Belgium, the British Isles, north-western France, Spain and the northern part of Portugal. Rainfall occurs in this region all through the year under the influence of the wet westerlies and this factor coupled with the warm Gulf Stream flowing close by this region accounts for the temperate nature of the climate.

(3) *The Continental Region in the Centre* comprising the major portion of Germany, Austria, Hungary, Czechoslovakia, Rumania, Yugoslavia, Bulgaria and a part of Russia. Due to absence of high mountains in the north the winter here is very much severe but the summer heat is not so great.

(4) *The Continental Region in the East* with the major portion of Russia, also Poland and the Baltic states. With the exception of the Baltic states the climate of the other places is extreme.

(5) *The Tundra Region in the North-east*—This includes the coastal regions of the Arctic Ocean. It lies in the Arctic zone and remains covered with ice nearly the whole of the year.

With the exception of the Tundra regions the whole of Europe is inhabited, the density of population being heavier in the warmer south.

NATURAL VEGETATION—As on human habitation, climate exercises great influence on natural vegetation too, and it is on account of this that natural vegetation in different parts of Europe differs according to climatic variations. On the basis of natural vegetation this continent can be divided in *five* broad regions :—

- (1) *The Mediterranean Evergreen Forest Regions in the South*—
The principal trees here are oak, olive, fig, peach, walnut, etc
- (2) *The Deciduous Forest Regions in the West and North west*—
Oak, beech, elm, maple, etc are the principal trees
- (3) *The Temperate Grassland Regions in the East and North east*
- (4) *The Coniferous Forest Regions in the North*
- (5) *The Tundra Regions further North in the Arctic Circle*

RIVERS—All the European rivers, both large and small, have their origin in the southern mountains and the Valdai region. Their upper courses are swift flowing and full of rapids while the middle and lower courses are navigable. The rivers are much smaller than those of other continents and although they run in various directions, their proximity to one another has enabled them to be connected by means of canals, thus contributing to an appreciable extent towards the development of industry and commerce. The most important European rivers of commercial importance are the Danube, the Seine, the Rhine, the Elbe and the Vistula. Many of the rivers of eastern Europe, however, empty themselves into inland seas. Furthermore, they are in most cases snow fed. They are, therefore, not very serviceable all the year round, the traffic being impeded by ice during the winter months. Consequently, their commercial importance is very much restricted. The location of busy sea ports at the mouths of the Central European rivers on the other hand, have made these rivers more important commercially than those of the eastern ones, although the former have north western direction. The Scandinavian rivers though short and rapid and unfavourable for general traffic, are valuable as sources of water power.

THE DANUBE, (1700 miles), the longest river of Europe, rises from the Black Forest and falls into the Black Sea. Although it passes through many countries such as Germany, Austria, Czechoslovakia, Hungary, Yugoslavia, Rumania and Bulgaria, it is more or less of local importance since its passage lies far away from the industrially developed areas of Europe and its main traffic is to a very great measure confined to produce of the agricultural regions through which it flows and also for the fact that it

flows into an inland sea. The industrial areas through which it passes, however, find it more convenient to use other means of transport for their industrial products, since it causes flooding near its mouth.

THE SEINE (480 miles), has its source in Burgundy. It first takes a north-westward course and then flowing south-west and again north-west it reaches Paris and discharges its water in the English Channel. As the river traverses through the vine and wheat producing areas it is much used for transporting foodstuff.

THE RHINE (760 miles), is the greatest navigable river in the world. It rises in Switzerland and flowing through the borders of France and Germany, Western Germany and Holland falls in the North Sea. The Rhine passes through the agricultural and manufacturing districts of the main continent and is a "highly important north-south avenue of transport and communication". It is in constant use by small ocean vessels for a considerably long distance.

THE ELBE (690 miles) has its origin in the north-eastern hills of Bohemia, whence it flows north-west and traversing the manufacturing districts of Czechoslovakia and Saxony and the beet-growing districts of Germany empties itself into the North Sea. Small vessels can ply easily to Prague.

THE VISTULA originates from the Carpathians and flowing first north-east and then north-west it traverses the western part of Poland and falls into the Baltic Sea. It is navigable throughout its whole length.

CAUSES OF GREATNESS OF EUROPE—Europe is the habitat of the most advanced people of the world and is rightly said to be *the cradle of modern civilisation*. It is the greatest manufacturing region of the world. Its favourable location in the heart of the world's Hemisphere, favourable climate, rich mineral resources, and energy of its inhabitants contributed greatly to the phenomenal development of industries in this region. Of these very many factors geographical location and temperate climate are considered to be of highest importance. Its location in the centre of the northern Hemisphere and the extremely indented nature of the coastline have greatly favoured the growth of quite a good number of

ports enabling development of trade and commerce possible all over the world. Due to the broken nature of coastline no place of this continent is far away from the sea with the result that the inhabitants have become bold and expert navigators. The temperate climate which prevails in almost all parts of the continent has made the people healthy active and very hardy. The innumerable navigable rivers and canals railways and airways have provided all possible facilities for communication and transport. Success in agriculture due to high fertility of soil and abundant mineral resources—especially proximity of coal and iron—have eased the way to the industrial advancement of the Continent.

AGRICULTURE—In spite of the predominantly industrial character of the continent agriculture is by far the most important occupation of its inhabitants. Over 50 per cent of the people is engaged in agriculture. Europe (excluding Russia) alone produces over 38 per cent of the total foodstuff of the world and Russia (including Asiatic Russia) produces over 12 per cent. The continent as a whole is the largest producer of wheat barley, rye, oats, sugar beet, flax, potatoes and Mediterranean fruits. Agriculture is highly intensive and the yields per acre of agricultural crops are the highest in the world. In spite of its production of over 40 per cent of the total foodstuff of the world the continent continues to be a great importer of foodstuff and agricultural raw materials.

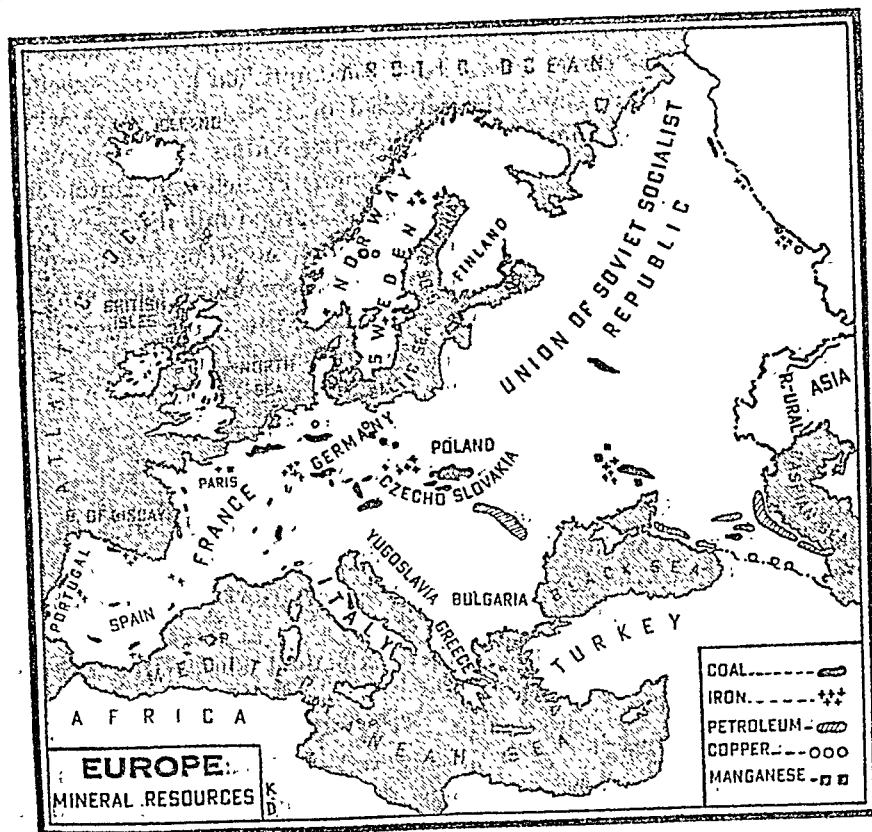
Fishing industry is also important. It is also the leading continent in fisheries too. The principal fishing grounds are located in the north west Atlantic and Mediterranean coasts. *Pastoral industry* is practised in the mountain slopes. Spain and Portugal are the habitat of the well known Merino sheep.

Lumbering industry is important. Nearly 30 per cent of the total area of Europe is under forests. Forests in Europe can be classified into two broad groups—(1) Coniferous forests and (2) Deciduous forests. The principal coniferous forest belt stretches from Scandinavia to the Urals and the deciduous forests are found in north western Europe.

MINERALS—In mining industry, too the position of Europe is very satisfactory. Coal, iron, petroleum, manganese, copper, lead, zinc, aluminium, platinum and gold are its principal minerals.

The distribution of the minerals, however, is very uneven. Minerals are practically absent in countries like Denmark and Holland; whereas Russia, Germany, France, Great Britain, Czechoslovakia and Spain are very rich in mineral resources. Coal and iron are of primary importance in modern industry but these are very wide-spread. Copper is found in Germany in addition to coal and iron. In production of petroleum Russia, Rumania, Poland, Czechoslovakia and Germany are important. In production of manganese Russia is the world's leader. In Europe, small quantities of silver, mercury, sulphur, salt and tin are also mined.

TRADE—International trade and commerce of Europe is highly developed. The value of its foreign trade is nearly equal



to that of the total foreign trade of the rest of the world. The continent imports more than it exports; and its share in world

imports amounts to nearly 56 per cent, while its exports nearly amount to 46 per cent of the world exports

§ **TRANSPORT**—Means of communication has greatly developed in Europe. From a very early period rivers have been an important means of communication throughout Europe. The drawbacks of the European rivers are, however, well adjusted by the excellent canal system of the continent. "They generally join various rivers or run in parallel to them to relieve congestion and assist navigation. In European Russia all the principal rivers are thus linked together and it is possible to cross Europe from east to west by canal and river. This means of transport is extremely important on the great central plain—Germany, Belgium and France in particular having a vast network of waterways." Speedy communication between the highly important industrial and commercial centres has been accomplished by an excellent network of railways and the physical obstacles have everywhere been overcome by remarkable engineering feats. The efficient air services operated by the British, German, French and Dutch concerns fully cover not only the whole of Europe but different parts of the rest of the world as well. In short, no stone has been left unturned to make the development of its communication systems nearly perfect. Its extensive coastline with good many ports helped greatly in the development of coastal traffic. In fact Europe owns over 65 per cent of the world's shipping tonnage and its mercantile marine service is well organised.

THE BRITISH ISLES

The British Isles comprise a group of islands situated on the western margin of the continent of Europe. They are separated from the main land mass by the North Sea, the Strait of Dover and the English Channel.

The British Isles, the United Kingdom and Great Britain mean different territories. No distinction, however, is made in the general use of these terms. The British Isles is a geographical unit and includes all the big and small islands situated on the north west coast of Europe. It includes England, Wales, Scotland, Ireland, Isle of Man, Shetland Islands, Orkney Isles, Channel Isles and many other small adjacent islands. The United Kingdom comprises England, Wales, Scotland and Northern

Ireland. The term Great Britain refers to the main island and includes England, Scotland and Wales.

The area of the British Isles is nearly 122,000 sq. miles and the population is over 50 millions. The country is very densely populated. The average density of population per sq. mile is 750 in England (including Wales) as against 314 in India. The population of the British Isles is very unevenly distributed. The basins of the Mersey, the Ouse, the Thames, the Severn, the Tyne, the Clyde and the Forth, harbour the densest population as these river basins are the centres of the principal manufacturing industries of Great Britain. On the other hand, the mountains and Upland regions have sparse population. The density of population is as high as 1,000 per sq. mile in the industrial zone as against 10 in Scottish Highlands. The area and population of the British Isles is given as under :—

		<i>Area.</i> (<i>Sq. miles</i>)	<i>Population.</i> (<i>Thousands</i>)
The United Kingdom	94,633	50,370
Irish Free State	26,600	2,959

The United Kingdom was the greatest colonial power. Her far-flung empire covered a total area of 12,502,127 sq. miles—nearly one-fourth of the total land area of the world—and its population is over 570 millions.

RELIEF—With the exception of South-East England, British Isles are hilly and mountainous but the elevations usually do not exceed 2,000 feet. On the basis of relief, the surface of the British Isles can be divided as shown :—

- | | | |
|-------------|---|---|
| SCOTLAND .. | { | (1) The northern Highlands in the north. |
| | | (2) The southern Uplands in the south, and |
| | | (3) The Midland Valley lying between the northern Highlands and the southern Uplands. |
| ENGLAND .. | { | (1) The Upland regions of the Pennines, Cumbrian Hills, Welsh mountains, and Cornwall and Devonshire in the north and west, and |
| | | (2) The Plains in the south and south-east. |

IRELAND { (1) The Coastal Mountain regions and
(2) The Central Plain

RIVERS—The Thames the Mersey, the Severn the Clyde and the Shannon are the principal rivers of the British Isles. Of all these the most important are the Mersey of England and the Clyde of Scotland in so far as the former serves the industrial region of Lancashire and the latter the industrial region of Lanarkshire. Although the basins of both these rivers are important centres of cotton manufacturing industry for various reasons the Mersey basin has gained greater importance in cotton industry than the Clyde basin where shipbuilding industry has outstripped the cotton industry.

The Mersey flows westwards from the Pennine water parting. The height of the hills and mountains of the region through which it flows does not exceed 1 200 to 1 500 feet above sea level. Abundant coal resources the favourable situation facilitating importation of cotton from America abundant water supply, and favourable climate have contributed to the great development of the cotton industry in this river basin. A ship canal has connected Manchester the most important industrial centre with the Mersey.

The Clyde is the most important river of Western Scotland. It rises in Lanarkshire and flows to the Firth Clyde. "The Clyde basin consists of lowlands interspersed with broken lines of hills and undulating uplands. The region is very fertile and rich in mineral resources. It is by far the most important industrial region of Scotland. The climate is equable and the region receives abundant rainfall from the wet westerlies. This has given rise to the famous manufacturing industry of this region. The existence of good coal fields in Lanarkshire and other areas nearby, the damp climate and the ease with which cotton can be imported from North America have led to the localisation of cotton industry in the Clyde basin. Glasgow and Paisley are the cotton manufacturing towns. But the cotton industry of Lanarkshire is far less important than that of Lancashire mainly because the former area finds it more profitable to devote most of its energy to iron and steel industry. The lower Clyde basin is one of the largest ship building areas of the world. The favourable situation for trading with America and the presence

of coal and iron in the neighbourhood facilitated the growth of ship-building yards on both banks of the Clyde below Glasgow.

The industrial and commercial development of Great Britain is great. *THE FACTORS ACCOUNTING FOR HER INDUSTRIAL AND COMMERCIAL GREATNESS* can be divided into three broad heads : (1) Geographical. (2) Human, and (3) Economic. The geographical factors comprise (i) Situation, (ii) Climate, (iii) Minerals like coal and iron, (iv) Coastline etc. The human factors include (i) Labour, (ii) Inventions, (iii) Communications etc., and the economic factors refer to (i) Capital, (ii) Colonial possessions etc.

The location of the country is very helpful for the development of her trade and industries. She occupies an insular position in the heart of the world's Hemispheres and is very close to the world's sea-routes. This favourable location helped in a great way her commercial development. It provides her immunity from external attacks, a fact no less important in building her industries.

As the British Isles lie between 50° and 60° N. latitudes the climate should have been cold. But the insular position, the westerlies blowing over the land mass all the year round, and the warm Gulf-stream washing the shores have combined together to make the climate equable and mild. The winter here is less severe. Moreover, there is very little variation in temperature as between summer and winter months due to the wet, warm western and southern wind that blows over the British Isles all the year round. In winter the eastern part remains cooler than the western part. All these factors combined together tend to make the climate of the British Isles more equable than that of other countries on the same latitude. This mild and equable climate has made agricultural and industrial activities possible all through the year. The mild climate, moreover, keeps the ports ice-free resulting in perfect transport facilities. Thus, the climate is one of the leading factors contributing to the industrial growth of the country.

Coal and iron are two important requisites for the industrial growth of a country and Great Britain is particularly fortunate by the presence of both in close proximity to each other. She is the second largest producer of coal in the world and her coal is of first class anthracite variety. In production

of iron too her position is satisfactory. Besides other minerals like tin, copper, lead, kaolin and limestone are present.

The *coastline* of the British Isles is very extensive. Roughly speaking for every twenty sq. miles of area there is one mile of coast so that no part of the Isles is more than 100 miles from the sea. Moreover the coastline of the British Isles is very broken, thereby helping the growth of many good ports. The nearness of the coast and the presence of many ports favour the manufacturing regions in importing raw materials and disposing of finished products.

The *British labour* is very efficient. The racial virtues of high enterprise, ambition and adventure account for the feverish activities of the British people and consequent economic growth.

The *inventive genius of the British people* led to many early inventions which gave her an early start in industries. It was fortunate for Great Britain to have a brilliant set of pioneering scientists and inventors who invented 'Steam engine', 'Power loom', 'Spinning Jenny' etc. These inventions revolutionised the processes of production and gave her an early start in the modern factory system of production.

Her *means of communication* is satisfactory. The development of her roadways, railways, waterways and seaways has left nothing to be desired. They help greatly her trade and industries.

The *undisturbed political conditions* of Great Britain greatly helped in the growth of her capital. In modern industries it plays a very significant role and its abundant supply is essential.

The *colonial possessions and dependencies* of Great Britain are extensive. They are distributed in the different climatic zones and are mostly undeveloped. Thus they not only provide raw materials to feed her manufacturing industries but also serve as markets for the disposal of her finished products.

GREAT BRITAIN

AGRICULTURE—Although Great Britain is primarily an industrial country, agriculture holds an important place in the national economy of the country. It engages nearly 8 per cent of the total occupied population. Out of the total land surface of 56,263,000 acres, 17,078,000 acres are devoted to arable farm

ing, i.e., nearly 30 per cent. of the land is devoted to agriculture. Wheat, barley, oats, rye, potatoes, sugar-beet, flax, and peas are the principal agricultural crops. The agricultural regions are for the most part located in the south-east and east. The flat level lands and favourable climate make intensive cultivation possible. Of all the cereal grains, the acreage under rye is high and exceeds the acreage for all other cereal crops. Oats and rye are northern crops and are also largely grown in the poorer soils of south-eastern England. Wheat and barley are chiefly grown in Essex, Sussex, Suffolk, Norfolk, Hertford, Surrey, Kent and Lincolnshires in the south-east. Next to cereal grains cultivation of potatoes and sugar-beet is important. Fruit growing and market-gardening are also important. Although the climatic conditions of Great Britain favour the growth of deciduous forests, less than five per cent. of the surface is now-a-days covered with forests. *Lumbering industry*, thus, is not important for the country.

PASTORAL INDUSTRY—Cattle-rearing for yield of dairy produce and meat is important. Over 20 per cent. of the total land surface is devoted to permanent pasture. Cool, equable climate and prolific growth of grass make cattle-rearing easy and profitable. Dairy cattle is reared in the wetter west regions. Cheshire, northern Ayrshire, Somerset, Devonshire, Cornwall and Wales are noted for milk, cheese, butter, cream, etc. Most of the dairy-producing regions is close to the industrial areas and the whole production is consumed locally. Beef cattle is reared almost in the same regions as the dairy cattle. But the mountainous countries of Wales, Devon, Cornwall, Cumberland and Scotland are famous for such cattle.

Sheep-rearing was formerly an important industry of Great Britain and the sheep of the British breed are even now well-known for their high quality wool and excellent meat. Due to more profitable uses of land for other purposes, sheep-rearing is now concentrated in the Pennines, Welsh mountains, northern Highlands and southern Uplands of Scotland and the Cheviot hills.

Horses, pigs and poultry are also raised in Great Britain. Usually cattle and poultry farming is carried on along with agriculture. This mixed farming is a characteristic feature of British economy.

FISHING INDUSTRY—Fishing industry occupies an important place in the national economy of the country. The cool, temperate climate and shallow continental shelves provide ideal conditions for prolific growth to fishes. The North Sea is one of the greatest fishing grounds of the world. In fishing industry Great Britain leads over all the countries situated in the North Sea. Fishes usually concentrate at the converging point of cold and warm currents. The seas around Great Britain are not very deep. Moreover the warm Gulf stream washing the shores of the British Isles keeps the sea water comparatively warm. Consequently the principal fishing grounds are confined to the shallow beds of the North Sea—particularly the famous Dogger Bank—the Irish Sea, the English Channel and the Bristol Channel and nearly 5 per cent of the total occupied population is engaged in fishing industry. Haddock, herring, mackerel, cod, hake, pilchards and sprats are the principal catches. The important ports engaged in this industry are Grimsby, Hull, Lowestoft, Aberdeen, Yarmouth, Peterhead, North Shields, Billingsgate and Fleetwood. Most of the fish is consumed locally, there being little export trade.

MINING INDUSTRY—Great Britain is particularly fortunate by the presence of two important minerals—coal and iron. Her coal is *of first class anthracite variety* and in its production she occupies the second position in the world. 'Another great advantage is *the ease with which the coal can be transported* from pithead to market, for nearly all the coal fields are at or near navigable rivers.' Her principal coal-fields are distributed as follows—

- | | | |
|---------------------|-----|---|
| England and Wales — | (1) | Northumberland and Durham |
| | (2) | Cumberland |
| | (3) | South Lancashire |
| | (4) | South west Yorkshire |
| | (5) | South Wales |
| | (6) | Mid country region which includes North and South Staffordshire, Warwickshire, Leicestershire and Shropshire, and |
| | (7) | Derbyshire and Nottinghamshire |

Scotland :—

{	(1) Clyde basin and Lanarkshire.
	(2) Ayrshire ; and
	(3) Forth basin and Fifeshire.

Some small coal-fields are found in Kent, Somerset and Bristol. Locations of her coal-fields are very favourable. They are *close to the iron-mining regions and are within easy accessibility to the sea*. The coal-fields of Great Britain are also the seats of her principal manufacturing industries. In ENGLAND, cotton textile, chemical rayon, glass, and textile machinery manufacturing industries are associated with Lancashire ; woollen, iron and steel and cutlery with Yorkshire : shipbuilding, locomotive and iron and steel with Northumberland and Durham ; silk and tinplate with SOUTH WALES ; iron and steel and engineering with Cumberland ; automobile, glass, porcelain, machinery and hardware with mid-country regions ; and bicycle, cutlery and engineering with Nottingham and Derby. In SCOTLAND, likewise, shipbuilding and iron and steel industry is associated with the Clyde basin and Lanarkshire ; and leather industry with Ayrshire. Jute and linen industry is present in the Forth basin and Fifeshire. Besides, heavy engineering, locomotive, chemical, glass, cotton yarn, paper and porcelain industries have developed in the Clyde basin.

The following table gives a clear idea of the localisation of the major industries in the coal-bearing regions of Great Britain :—

<i>Coal-fields</i>	<i>Industries</i>
ENGLAND :	
1. Northumberland & Durham	.. Shipbuilding, locomotive and iron and steel.
2. Cumberland	.. Iron and steel, and engineering.
3. Lancashire	.. Cotton textile, chemical, rayon, and textile machinery.
4. Yorkshire	.. Woollen, cutlery and iron and steel.
5. Mid-country regions	.. Iron and steel, automobile, porcelain, glass, machinery and hardware.
6. Derby and Nottingham	.. Bicycle, cutlery and engineering.
7. South Wales	.. Silk and tinplate.

SCOTLAND

- | | | |
|---|-----------------------------|--|
| 1 | Clyde basin and Lanarkshire | .. Shipbuilding, iron and steel, heavy engineering locomotive, chemical, glass, cotton yarn, paper and porcelain |
| 2 | Ayrshire | Leather |
| 3 | Forth basin and Fifeshire | Jute and linen |

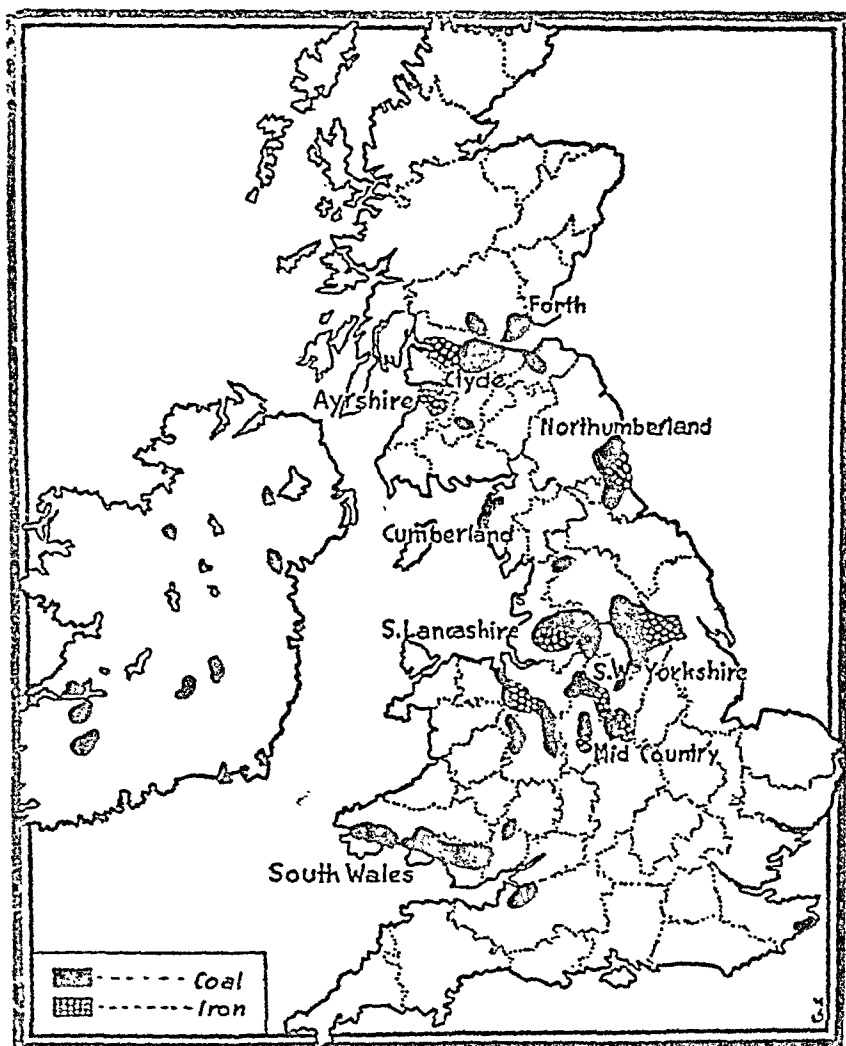
In the presence of iron ores too her position is satisfactory. She is the second largest iron and steel producing country in the world. Her principal iron mining regions are located close to the coal districts and are distributed as follows —

- | | | |
|----------------------------|---|--|
| <i>England and Wales —</i> | { | (1) Northumberland and Durham. |
| | | (2) Cumberland |
| | | (3) North Lancashire |
| | | (4) North and South Staffordshire |
| | | (5) Yorkshire, and |
| | | (6) Midland regions which include Northamptonshire, Oxfordshire, South Lincolnshire and Derbyshire |
| <i>Scotland —</i> | { | (1) The Clyde basin |
| | | (2) Ayrshire, and |
| | | (3) Fifeshire. |

In spite of her substantial production, Great Britain has to import large amount of iron ores from Spain, Norway and Sweden, Algeria, Tunis and France, since her requirements of iron ores are very high.

Besides coal and iron, tin, copper, lead, zinc, wolfram, salt, kaolin and limestone are also present. The principal tin mining regions are Cornwall and Devonshire. The mines seem to have been exhausted and recent production is insignificant with reference to world production. Lead and zinc are mined in small quantities in North Wales, Cumberland, Durham, and Scottish Highlands. Salt is mainly obtained in Cheshire and South Durham.

Mining of copper ore is no longer important due to cheap supply of copper from U.S.A. and Chile. *Kaolin* or *China-clay* is found chiefly in Cornwall and Devonshire.



Great Britain (Coal-fields)

On the whole mineral resources of Great Britain may be said to be considerable. But she is deficient in supply of many essential minerals like petroleum, nickel, manganese, mica, etc.

MANUFACTURING INDUSTRY—Great Britain is essentially a manufacturing country. Over 50 per cent. of the total occupied population is engaged in industries. The principal manufacturing industries are (i) cotton textile, (ii) woollen, (iii) linen, (iv) iron and steel, (v) cutlery, and (vi) shipbuilding. The characteristic features of British industries are that they are very much specialised and, particular industries are associated with particular coal fields. For example, cotton textile industry is localised in Lancashire, woollen industry in Yorkshire, linen industry in Forth basin, etc.

COTTON TEXTILE INDUSTRY—In the number of persons employed and the value of products manufactured, it is second only to iron and steel industry. The principal seat of cotton textile industry is Lancashire. The Glasgow Paisley region also has developed cotton industry, but it is much less important than that of Lancashire. **THE REASONS FOR THE LOCALISATION OF THE INDUSTRY IN LANCASHIRE ARE —**

(1) *Damp and humid climate*—The spinning and weaving of cotton require a damp climate otherwise the threads would become brittle and break. The wet westerlies blowing over Lancashire provide adequate humidity for the industry.

(2) *Coal and iron*—Presence of coal and iron is an essential pre condition for development of manufacturing industry and Lancashire is fortunate for the presence of both in close proximity.

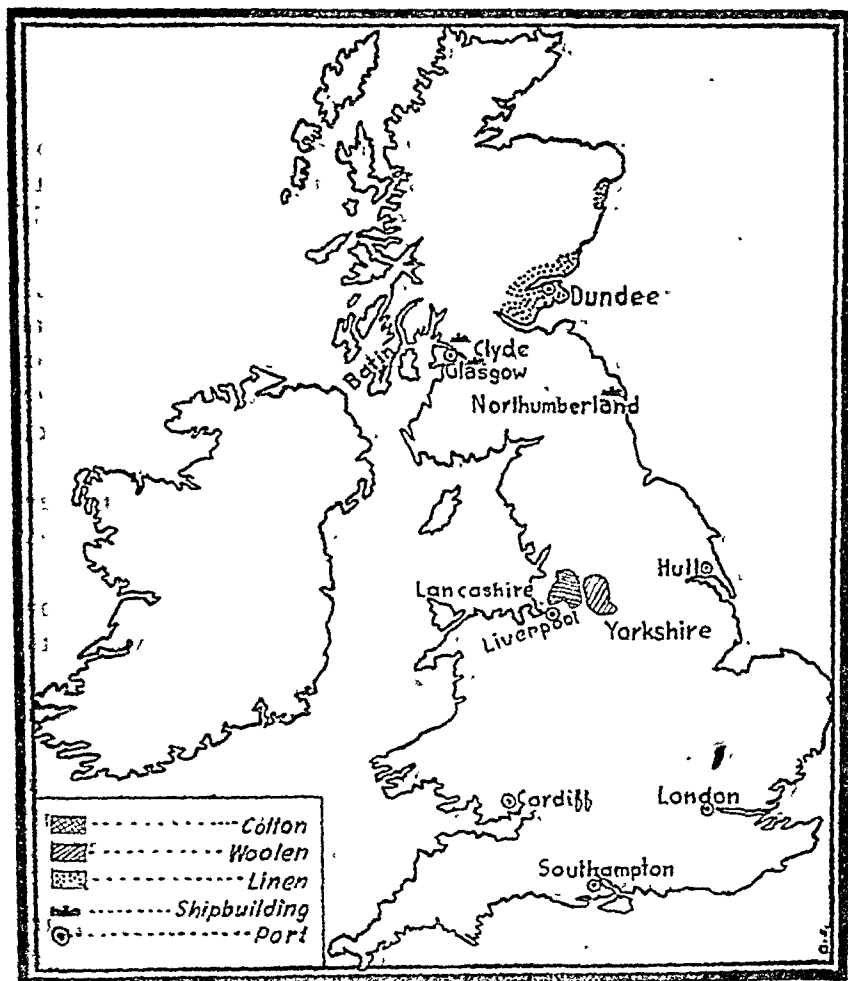
(3) *Soft water*—For bleaching and dyeing adequate soft water is essential and this is provided by the river system flowing from the Pennines.

(4) *Skilled operatives*—Cotton textile industry is carried on in this region for generations together and for this the present operatives have acquired some special hereditary skill and aptitude for the industry.

(5) *Raw materials*—Lancashire does not produce an ounce of raw cotton, but due to the presence of her magnificent ports of Liverpool and Manchester facing the U.S.A. her principal source of raw material, she is at an advantage in importing raw cotton. The principal countries to meet her requirements are the U.S.A., Egypt, India, Pakistan, Peru, Brazil and Sudan.

(6) *Colonial possessions*—Her extensive colonial possessions, which were for the most part very backward, served as markets for the disposal of her finished products. Her best customers are Australia, Malaya, Borneo and South Africa.

(7) *Salts*—The local supplies of salts make manufacture of chemicals for bleaching and dyeing possible.



Great Britain (Manufacturing Industries)

(8) *Manchester ship-canal*—The construction of the Manchester ship-canal which enables ships to go far into the interior in the heart of the cotton mill districts keeps low the

cost of importation of raw materials, and disposal of finished products

The Glasgow Paisley region is noted for threads. Most of the products of the cotton textile industry is exported. From the days of Industrial evolution until the war of 1914-18 British textile goods used to dominate the world's markets. But in recent years the industry is showing signs of decay and stagnation as will be evident from the following statistical abstracts —

	1931	1952
Export of cotton yarns	210 million lbs	35.7 million lbs
Export of cotton piece goods	7,075 „ sq yds	711 „ sq yds

The present plight of cotton textile industry is accountable to —

(1) *Decentralisation*—Beginning from the Industrial revolution down to the close of the nineteenth century Great Britain enjoyed a practical monopoly over cotton textile trade of the world. Due to the subsequent industrialisation of other countries like the U.S.A., Germany and France, her supremacy came to be questioned, and gradually she is losing her markets.

(2) *Tariff walls*—The protective barriers raised by new countries like India and Australia narrowed down the markets for British products.

(3) *Obsolescence*—British textile industries are by now more than a century old and they are carried on with very little changes in the methods and techniques of production. As a consequence costs of production of textile goods in Great Britain are high.

(4) *New substitutes*—Lancashire industries specialise in finer counts of textile goods. Recent inventions of substitute products like rayon, nylon, etc., have made serious inroads to the prestige of textile goods of Lancashire.

(5) *High wage scale*—Wage scales of British labourers are comparatively high which weaken the competitive capacity of British industries.

(6) *Japanese competition*—The preoccupation of Great Britain in the prosecution of war against Germany during 1914-18 gave Japan her coveted opportunity to supply neighbouring Chinese and Indian markets with her textile goods. With the

close of the war Great Britain could not regain her original position in these markets due to Japanese competition.

In recent years state-initiated rationalisation schemes to effect internal economies and cost-reductions are being adopted to arrest progressive deterioration of this premier industry of Great Britain.

WOOLLEN INDUSTRY—The woollen industry is much older and much more widely scattered than cotton industry. It is mainly localised in the West Riding of Yorkshire. *THE REASONS FOR THE LOCALISATION OF THE INDUSTRY IN YORKSHIRE ARE :—*

(1) *Cool, dry climate*—The location of Yorkshire in the rain-shadow regions of the Pennines accounts for dry climate conducive to spinning of woollen yarns.

(2) *Coal and iron*—Coal and iron, the two prerequisites of modern industries, are present in sufficient quantity, and in close proximity to each other.

(3) *Alkaline water*—The Ouse and her tributaries flowing through limestone regions provide suitable water for bleaching and dyeing the wool.

(4) *Raw materials*—Originally local supplies of wool from the Pennine pastures localised the industry. Subsequently local supplies proving too inadequate, the industry has to rely on imported wool from New Zealand, Australia, Union of South Africa, Argentina and Uruguay.

(5) *Transport facilities*—Her close proximity to the sea, her rivers and canals, together with the presence of magnificent ports of Hull and Goole greatly facilitate importation of raw materials from overseas sources and export of finished products to the overseas markets.

The principal customers of her woollen goods are Germany, Canada, India, Pakistan, China, Australia, New Zealand, South Africa and Scandinavia. The towns engaged in this industry are Bradford, Huddersfield, Halifax, Dewsbury, Shipley, Leeds, etc.

Linen industry—Linen is another important textile industry localised at Dundee in Scotland. The American Civil war of 1860-64 gave a great encouragement to this industry as the cotton textile industry at that time suffered a great depression due to want of raw materials. *COOL AND MILD CLIMATE, LOCAL*

SUPPLIES OF RAW MATERIALS (FLAX) FACILITIES OF IMPORTATION OF RAW MATERIALS FROM THE BALTIC STATES SCANDINAVIA CANADA BELGIUM AND RUSSIA AND ABUNDANT SUPPLY OF COAL IN CLOSE PROXIMITY TO IRON are factors responsible for the localisation of this industry in the Dundee region.

The experimentation of *JUTE* spinning and weaving proving successful the industry came to be developed in the Dundee region along with linen. Jute is akin to flax. It is a coarse fibre but suits well for fabrication by the linen machineries.

IRON AND STEEL—In value of gross output and the number of persons employed iron and steel is by far the most important industry of Great Britain. **ABUNDANT SUPPLY OF COAL AND LIMESTONE IN CLOSE PROXIMITY TO IRON ORES** and the advantageous use of hydro-electric power in the industry favoured its growth. The industry is an old one and her iron mines have been heavily worked. Although the iron and steel industry of Great Britain has grown up in different coal field areas it has been localised particularly in mid England region which is now commonly known as the Black country due to the smoke constantly emanating from the mill chimneys. At present the industry depends largely on imported iron ores from Spain Scandinavia Algeria Tunis France and Luxemburg. The characteristic feature of the industry is great specialisation. Smelting of iron ores into pig iron and steel is mainly carried on in—

(1) *Northumberland and Durham*—Newcastle Hartlepool Sunderland and Middlesbrough are the important centres of this region.

(2) *The Black-country region*—Birmingham Coventry Northampton and Rugby are important centres. This region is noted for light metal industries. The automobile industry is localised at Coventry (Daimler commercial vehicles) Cowley (Vulfield cars) and Derby (Rolls Royce cars). The bicycle industry is localised in Nottingham Birmingham and Coventry.

(3) *South-west Yorkshire*—Sheffield Leeds Rotherham Chesterfield and Bradford are important in this region. Cutlery industry is localised in Sheffield since suitable grinding stones for sharpening products of the industry are found in its neighbourhood.

(4) *South Lancashire*—Manchester, Bury, Burnley, Blackburn and Bolton are important centres. Textile machineries, electrical apparatuses, engineering, and locomotive engine manufacturing are important industries of this region.

(5) *South Wales*—This region is noted for tin-plate industry based on imported iron ores from Spain and Algeria and tin from Malaya and Bolivia. Swansea and Cardiff are important centres.

(6) *Scottish Lowland region*—This region is becoming increasingly important in recent years. Heavy machineries, locomotive engines, constructional engineering, rails and shipbuilding industries are important. Glasgow is world-famed for her shipbuilding industry. The reasons accounting for the localisation of the industry at Glasgow are: (a) *ABUNDANT SUPPLY OF COAL AND IRON IN CLOSE PROXIMITY TO EACH OTHER* (b) *PRESENCE OF NATURAL HARBOUR*; (c) *THE NAVIGABLE CLYDE PROVIDING IDEAL TRIAL GROUNDS FOR NEWLY-CONSTRUCTED SHIP*; (d) *LOCAL SUPPLY OF TIMBER*, AND (e) *THE EFFICIENCY OF THE WORKERS*.

SHIPBUILDING is a very important industry of Great Britain. This industry has particularly flourished on the Clyde and the Tyne, because these two rivers flow through the coal and iron regions. The chief centres are Greenock, Clyde, Dumbarton and Glasgow on the Clyde; Jarrow and Newcastle on the Tyne; Sunderland on the Wear; and Middlesbrough on the Tees. Southampton, Hull, Liverpool and Birkenhead also have gained considerable importance in shipbuilding, as these ports have facilities to obtain coal and iron at very cheap costs. Before the advent of steel in the shipbuilding industry ships were made of wood. The major portion of Great Britain's overseas trade was done through London Port. It is for this reason that the shipbuilding industry at that time flourished on the banks of the Thames. Subsequently when iron and steel sheets took over the place of wood this industry was shifted to the Clyde and other northern rivers due to some special geographical advantages and since then the ports on the Clyde have become the principal centres of shipbuilding. The Lanarkshire coal-field, the iron mine of Airdrie, easy availability of motive power, inherent skill of the

Scotch people in shipbuilding and facilities for testing the speed of the ships in the mouths of navigable rivers and also in coastal areas, are the main factors contributing to the development of this industry in Clyde, Dumbarton, Glasgow, etc

Industries like silk, rayon, porcelain and glass, chemicals etc. are also important. The *heavy chemical industry* is localised in Lancashire and Cheshire due to abundant local supplies of natural salts. *Silk industry* is important in the county of London. *Rayon* has developed in Lancashire. *Highly developed chemical industry and facilities of importing cheap soft wood pulp* from Canada account for the concentration of the industry in Lancashire region.

COMMUNICATIONS—Great Britain is an insular country with no part of the country more than 100 miles off from the sea for which there is a good deal of facility for coastal trade. Besides, on all sides navigable rivers flow down which make inland communication very much easy and less expensive. The Ouse, Trent, Mersey, Thames and Severn with their tributaries are navigable throughout the year. The Ouse (Yorkshire) is navigable throughout its length. The Trent, the Mersey, the Thames and the Severn are all inter-connected with a network of canal system which has enhanced all the more their value for transportation purposes. The Trent is navigable as high as Gainsborough, the Thames as high as Hampton and the Severn as far as Stourport. Besides, the Tees, Tyne, Clyde and many other rivers are very much helpful for inland traffic.

The canal system (total length 2,400 miles) is equally important. The *Manchester ship canal* (35 miles) enables ocean going liners to go to as far as the inland centre Manchester without unloading at the outer port Liverpool. The *Berkley ship canal* enables ships to go straight to Gloucester without stopping at the estuary of the Severn. The *Bridgewater canal* connects Manchester to Worsley, an important coal centre. The most important of Scottish canals is the *Forth and Clyde canal* which has lessened greatly the distance between the eastern and western ports of Scotland. The *Caledonian canal* constructed through the narrow valley of Glenmore enables small ships to go from the east to the west of Scotland and vice versa.

Great Britain has a thorough network of railways. Altogether there are over 20,000 miles of railways. They are of uniform gauge and radiate from London, the great traffic centre. All the main lines are worked under *six* zones, viz :—(1) *London Midland Region*; (2) *Eastern Region*; (3) *Western Region*; (4) *Southern Region*; (5) *North-Eastern Region*; and (6) *Scottish Region*.

The road mileage of Great Britain is also considerable and exceeds over 200,000 miles.

In airways too Great Britain has made considerable progress. Since 1946 the internal and international air transport came to operate under the direct supervision of the State. To facilitate the working of the air transport system three State organisations have been established, viz. (i) *British European Airways Corporation*, (ii) *British Overseas Airways Corporation*, and (iii) *British South American Airways Corporation*.

FOREIGN TRADE—The foreign trade of Great Britain is considerable. It is wholly sea-borne. Its characteristic features are :—

- (1) The excess of imports over exports which is accountable to her creditor position, and political influence over a quarter of the earth's surface.
- (2) The predominance of food-stuffs and raw materials in the list of imports. Over 70 per cent. of her import trade consists of food, drink and raw materials.
- (3) The predominance of manufactured products in the list of exports. Nearly 80 per cent. of her export trade consists of manufactured and finished products.
- (4) Predominance of Commonwealth countries in the list of foreign trade. Nearly 40 per cent. of the import trade and over 50 per cent. of the export trade are carried on with Commonwealth countries.

Her principal exports comprise cotton yarns and piece-goods, hardware and machinery, woollens, silk and rayon, chemicals, porcelain, glass and earthenware, electrical goods and apparatus, coal, paper and motor vehicles. Her imports include cereal grains and flour, dairy produce, meat, fresh fruits and vegetables, oil-seeds,

tea, coffee and cocoa, tobacco, opium, cotton, jute, wool, hemp silk, hides and skins, rubber, timber, wood pulp and minerals

The nature of the import and export trade of Great Britain (including northern Ireland) in 1932 will be evident from the following tables —

IMPORTS

(in million sterling)

	<i>Total value</i>	<i>Per cent</i>
1 Food-stuff		
Cereals and flour	262 3	7 5
Meat	221 5	6 4
Drink	167 0	4 8
Dairy products	146 4	4 2
Fresh fruits and vegetables	96 7	2 8
Tobacco	52 0	1 5
Others	268 6	7 7
Total	1,214 5	34 9
2 Raw Materials		
Oil seeds	406 4	11 7
Minerals	196 8	5 7
Wool	177 3	5 1
Timber	163 9	4 7
Cotton	128 3	3 7
Rubber	103 3	3 0
Hides and skins	40 6	1 1
Others	183 5	5 2
Total	1,400 0	40 2
3 Manufactured Goods		
Metals	345 9	9 9
Machinery	108 7	3 1
Oil, fat, etc	103 0	3 0
Others	293 8	8 4
Total	851 4	24 4
4 Miscellaneous	15 5	0 5
Grand Total	3,481 4	100 0

EXPORTS*

(in million sterling)

	<i>Total value</i>	<i>Per cent</i>
1. <i>Manufactured Goods</i>		
Vehicles	479.2	18.8
Machinery	421.7	16.5
Hardware	191.6	7.5
Cotton textiles and yarns	148.1	5.8
Chemicals and pharmaceuticals	138.0	5.3
Woollen goods	123.9	4.9
Electrical goods	109.6	4.3
Others	620.6	24.4
	<hr/>	<hr/>
Total ..	2,232.7	87.5
2. <i>Raw Materials</i>		
Coal	55.4	2.2
Wool	25.1	1.0
Others	30.2	1.2
	<hr/>	<hr/>
Total ..	110.7	4.4
3. <i>Foodstuff</i>		
Drinks	54.1	2.1
Tobacco	24.6	0.9
Others	78.9	3.2
	<hr/>	<hr/>
Total ..	157.6	6.2
4. <i>Miscellaneous</i>	48.6	1.9
	<hr/>	<hr/>
Grand Total	2,549.6	100.0

Great Britain ranks second in the total value of foreign trade of the world. She has foreign trade relations with almost all the different countries of the world. The following statement shows Great Britain's relation with other countries, so far as her import trade is concerned :—

<i>Imports</i>	<i>Countries</i>
1 Wheat and flour	Canada Australia Argentina and Union of South Africa
2 Meat	Argentina Australia and New Zealand
3 Tea	Indian Union Pakistan Ceylon and Java
4 Coffee	Brazil British East Africa and West Indies
5 Cocoa	Gold Coast
6 Dairy products	New Zealand Australia Denmark Holland and Canada
7 Sugar	Mauritius Cuba and Australia
8 Tobacco	U.S.A. and Rhodesia
9 Cotton	U.S.A. Indian Union Pakistan Egypt Sudan and British East Africa
10 Jute	Pakistan and Indian Union
11 Flax and hemp	Russia Ireland and Belgium
12 Rubber	Malaya and Ceylon
13 Wool	Australia New Zealand and Union of South Africa
14 Iron ores	Sweden Spain and Algeria
15 Tin	Malaya Nigeria and Bolivia

A statement of countries to whom Great Britain exports her products is given below —

<i>Country</i>	<i>Exports</i>
1 Indian Union & Pakistan	cotton textiles woollens hardware and machinery motor cars chemicals and pharmaceuticals paper and rubber goods
2 Australia	Cotton goods woollen goods hardware and machinery chemicals and motor cars
3 Canada	Cotton goods woollen goods hardware and toilet goods
4 Union of South Africa	Textile goods vehicles hardware and machinery

- | | | |
|--------------|----|--|
| 5. France | .. | Coal, hardware and machinery and woollen goods. |
| 6. Argentina | .. | Hardware and machinery, cotton textiles, coal, woollen goods, locomotives, chemicals and electrical goods. |

PORTS AND TOWNS—*LONDON*, the chief port of the British Isles, is situated 55 miles off from the sea on the head of the Thames estuary. It is the biggest city and largest sea-port of the world. Its facing towards the mouths of the Schelde and Rhine, the two high roads of European commerce, has provided it with an excellent opportunity to trade with continental Europe. It controls as much as 35 per cent. of the total foreign trade of Great Britain. It is a great entrepot trade centre as well, controlling much of the British, foreign and colonial trade with the Baltic and Mediterranean ports. The principal commodities imported are tea, coffee, rubber, tobacco, and other typical products from the East; wool, meat, dairy products, hides and skins from Australia, New Zealand and Argentina; wheat and maize from Canada and U.S.A.; and cotton and petroleum from U.S.A. It is the capital and chief railway centre of the British Isles. *LIVERPOOL*, situated at the mouth of the Mersey, is the second largest port of the British Isles. It is connected with Manchester by means of the famous Liverpool-Manchester ship canal. It is the natural outlet for the products of the Lancashire cotton textile industry. It also exports products of the Yorkshire and 'Mid-country' regions. The principal imports comprise raw cotton, wheat, meat, fruits, rubber, wood-pulp and petroleum. Liverpool is pre-eminently the port for trade with Americas. *HULL*, situated on the Humber estuary, is the third largest port. It serves principally the woollen, worsted, iron and steel and cutlery industry of Yorkshire. It is also an important fishing port. *GLASGOW*, situated on the Clyde river in Scotland, is the principal town and first port of Scotland. It is well known for its shipbuilding industry. Glasgow is the busiest industrial area in Scotland. Cotton textile, constructional engineering, paper and chemical industries are also developed in this region. *DUNDEE*, situated on the Firth of Tay, is an important port on the eastern coast of Scotland. It is the centre of jute and linen industry of Great Britain. Its favourable situation facing the Baltic ports

favoured the growth of its linen industry **BRISTOL**, situated near the Bristol channel, is an important port with a large import trade in tobacco sugar cocoa and plantains from America and the West Indies It is the principal distributing centre for the West England **CARDIFF** and **SWANSEA** are the two important ports of Wales Cardiff is the principal coal port of Great Britain Formerly much amount of coal used to be exported In recent years due to burning of oil in steamships and development of hydro electricity exports of coal from this port greatly fell Swansea is the centre of tinplate industry and imports much tin ores from Malaya Bolivia Chile and Nigeria **SOUTHAMPTON** situated on the south coast of England is the premier passenger port of Great Britain and the fourth largest cargo port of England **ABERDEEN** situated at the mouth of the river Dee is an important fishing port of Scotland **GRIMSBY** in Lincolnshire is also an important fishing port and the principal fish market in England **MANCHESTER** is an important port and the principal centre of the cotton textile industry of Lancashire Its importance has been greatly enhanced by the construction of the ship canal **LEEDS** and **BRADFORD** are the two cities connected with the woollen industry of Yorkshire and worsted goods like flannel blankets velvet are made **BIRMINGHAM** is the commercial centre of the 'Black country' region All types of light metal like motor cars steam engines screws nails needles are made round here **EDINBURGH** situated on the Firth of Forth is an important industrial and commercial port **PAISLEY** situated near Glasgow is well known world for its sewing threads

IRELAND

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- (3) Southern Ireland—The wet, mild climate of its western part is conducive to dairy farming and pig-rearing, while the drier climate of the eastern part favours agriculture.

Ireland has a saucer-like appearance with mountains on its coastal lands. *Agriculture* is extensively practised and potatoes, turnips, oats, wheat, barley and flax are largely grown. *Pastoral industry* is also important.

Ireland is poor in *minerals*. Some coal is found near Kilkenny in the Irish Free State. Iron and aluminium ores are known to be present in northern Ireland but they are very little worked. In spite of the paucity of mineral wealth northern Ireland is more industrially developed than its southern counterpart. *Industries* have concentrated in the north-eastern part of northern Ireland on account of its facilities for importing coal from Ayrshire coal-field of Scotland and Cumberland coal-field of England. Linen industry on home-grown as well as imported fibre from the Baltic countries is the most important, the linen produced being regarded as the finest in the world. The ample supply of home-grown flax together with the imported fibre, the humid climate, availability of cheap labour, employment of Scottish skill, and also adequate supply of pure water facilitating bleaching and washing have contributed to the development of this industry in northern Ireland. Although Ireland lacks in coal and iron, the proximity to the coal and iron mines of England and Scotland, launching and building facilities, efficiency of the workers and the low cost of land account for the development of shipbuilding industry also in this part of Ireland.

The principal exports of Ireland are dairy produce, linen, cattle and other live-stock, and the principal imports comprise coal, iron and steel, flax and cotton and woollen piece-goods.

PORTS AND TOWNS—**BELFAST** is the chief port and the principal commercial and industrial centre of Ireland. Linen and shipbuilding industry is important in this region. **DUBLIN** is the capital and the chief port of Irish Free State. It is an important manufacturing centre of the Eire. **LIMERICK**, situated on the

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IRELAND

Ireland is divided politically into (1) *Northern Ireland* which forms part of the United Kingdom, and (2) *The Irish Free State* (Eire). Of these two parts northern Ireland is more prosperous and developed. Physically, Irish Free State can be divided as follows —

- (1) The Central Plain which is rich in limestone. Stock raising is the mainstay of the population, the live stock mostly consisting of cattle and pigs.

- (2) The windswept, wet, mountainous west where fishing and stock-raising on a small scale are practised.
- (3) Southern Ireland—The wet, mild climate of its western part is conducive to dairy farming and pig-rearing, while the drier climate of the eastern part favours agriculture.

Ireland has a saucer-like appearance with mountains on its coastal lands. *Agriculture* is extensively practised and potatoes, turnips, oats, wheat, barley and flax are largely grown. *Pastoral industry* is also important.

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Shannon estuary, is the chief port of western Ireland. The port serves prosperous agricultural and 'pastoral regions of the Central Plain

THE BRITISH COMMONWEALTH

The British Commonwealth chiefly includes the following territories —

- (1) Great Britain and northern Ireland, the Irish Free State, Gibraltar and Malta in *Europe*
- (2) India Pakistan Burma,* Ceylon, Malaya Peninsula, Hongkong, Aden and British Borneo in *Asia*
- (3) Uganda, Nyasaland, southern and northern Rhodesia, Tanganyika, Union of South Africa, South West Africa, Zanzibar, Pemba, Nigeria, Sierra Leone, Gambia and Gold Coast in *Africa*
- (4) Canada, Bahamas, Barbados Jamaica, Bermuda, British Guiana and Honduras in *America*
- (5) Australia, New Zealand, Tasmania and Papua in *Australasia*

The question of economic self-sufficiency for the British Commonwealth is often raised and a brief discussion of the issue will not possibly be out of place in this connection

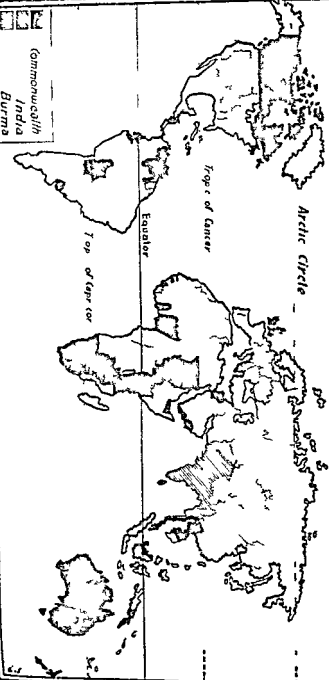
By the term *economic self-sufficiency* is meant the production of essential requirements of a country within its political boundaries. In short, it means independence of a country from the foreign sources of supply. The concept of economic self-sufficiency is a contribution of the war of 1914-18. Germany's too much reliance on overseas supply of food stuff and raw materials led to her ultimate defeat, since the effective blockade created by the Allied powers made importation of essential

* The Union of Burma was constituted on 4 January 1943. According to the treaty with Great Britain Burma came to be independent 'as a country not as than His Britannic Majesty's Dominion.' Thus Burma seceded from the British Commonwealth of Nations, but the influence of Great Britain on Burma is too strong to be ignored.

Germany, the Five-years' Plans of Russia, etc. are honest endeavours in that direction.

The problem is whether Great Britain alone or with her Commonwealth can be a self-sufficing economic unit. Great Britain alone cannot aspire to be an economically self-sufficing unit, as her domestic production of food-stuffs constitutes only 30 per cent. of her total requirements. Besides in supply of such essential commodities like rubber, cotton, petroleum, jute, etc. she absolutely depends on overseas sources. The British Commonwealth, however, can reasonably reorganise her economy on an economic self-sufficiency basis. In production of food-stuff, the Commonwealth as a whole holds a satisfactory position. Deficiency of Great Britain and India in food-stuff is amply met by surplus production of wheat by Canada, Australia and Union of South Africa; that of rice by Burma and British East Africa and that of meat, butter and cheese by New Zealand, Australia and Canada. Output of beverage crops like tea, cocoa and coffee is much more than Commonwealth requirements. Tea is grown in India, Pakistan, Burma, Ceylon and British East Africa; cocoa in Gold Coast (largest producer); and coffee in British East Africa, India and Ceylon. In cotton, jute and wool the Commonwealth can stand without any outside help. Sufficient cotton is grown in India, Pakistan, Union of South Africa, Uganda and Kenya. Australia, New Zealand and the Union of South Africa produce more wool than can be consumed within the Commonwealth. In jute the Commonwealth holds a monopoly position, India and Pakistan being the only sources of supply. 80 per cent. of rubber output is produced in the British Commonwealth. The Malaya peninsula and Ceylon are its principal producers. In supply of minerals like coal, iron, tin, manganese, mica, etc. the Commonwealth is self-sufficing. The only mineral in which the Commonwealth might be said to be deficient is petroleum. The Commonwealth produces only 3 per cent. of the world production but her requirements are very high. Thus with the exception of petroleum the British Commonwealth might be self-sufficing.

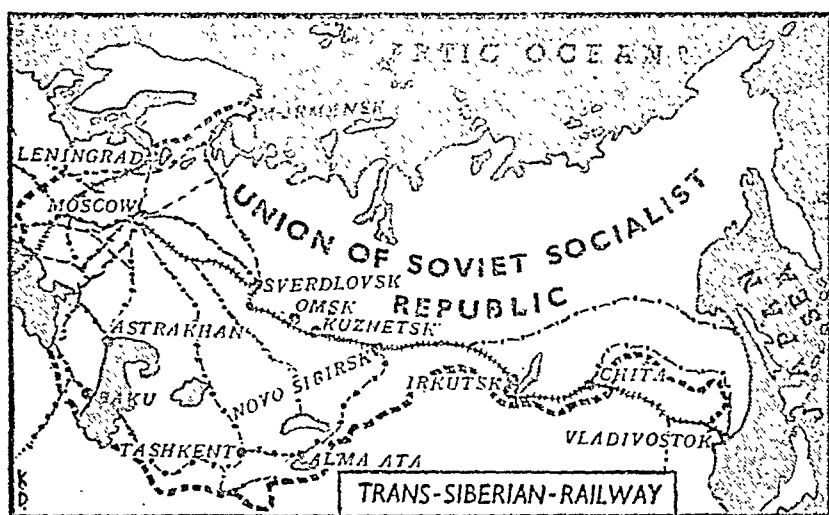
requirements impossible. With the armistice of the war of 1914—18 each and every country began to reorganise her industries on an economic self-sufficiency basis to provide against possible emergencies like wars etc. The post-war Four-years' Plans of



Commonwealth
India
Burma

THE U.S.S.R.

Russia-in-Europe and Russia-in-Asia are politically linked up as the Union of the Socialist Soviet Republics (U.S.S.R.). It covers an area of 8,768,070 sq. miles with a population of over 193 millions. It occupies one-sixth of the inhabited surface of the earth and is five times the size of undivided India. In 1940 the Baltic states of Lithuania, Latvia and Estonia and a part of Finland came to be included in the Union. U.S.S.R. is divided into *two* parts, the Ural mountains and the Ural river acting as the dividing line between the two parts. The part west of the Urals lying in Europe is known as Russia and the eastern part lying in Asia is commonly known as Siberia. The European part is commercially and industrially more developed.



The population of the U.S.S.R. is over 193 millions and is nearly one-tenth of the total population of the world. But its population is very unevenly distributed. Asiatic Russia (area 6.2 million sq. miles) is three times the area of European Russia, but its population (30 millions) is nearly one-fifth that of European Russia. Again, the concentration of population is heavier in the warmer south. In the southern fringes of European Russia nearly 20 per cent. of the population of the whole U.S.S.R. is found concentrated.

On the basis of climate and natural vegetation the U.S.S.R. can be mainly divided into *four* broad zones —(1) the Tundra and (2) the Coniferous Forest, Zones in the far north and north, (3) the Steppe Zone in the centre and the south, and (4) the Temperate D ser's in the interior

The U.S.S.R. though a land of varied natural resources, has not developed its industries to any appreciable extent. It remains even to day primarily an agricultural country. **THE CAUSES WHICH HINDERED ITS ECONOMIC GROWTH ARE —**

(1) **BAD CLIMATE**—The U.S.S.R. occupies the heart of the continental land mass of Eurasia. This fact accounts for extremes of climatic conditions as between summer and winter months. The enormous land area becomes intensely cold, with snowfall in the north and the centre, in the winter. On the other hand the summer months are intensely hot. These extreme variations in temperature are not conducive for healthy industrial growth.

(2) **FAST SIZE AND LOW DENSITY OF POPULATION**—The U.S.S.R. occupies a vast territory but its density of population is very low—approximately 25 per sq mile. Its varied natural resources provide occupations for a very considerable portion of the people. Manufacturing industries, hence, did not develop.

(3) **REGULAR COASTLINE**—The coastline of the U.S.S.R. in comparison to its size is extremely short and most of it is regular. Its northern coast is useless, since it is ice bound for the most part of the year. Its Pacific and Baltic coasts also remain frozen during winter. Thus, the number of ports to develop its foreign commerce cannot be large. The principal port on the Baltic Sea is *Leningrad*. Due to the inclusion of the Baltic states in the Union, *Revel*, the capital and leading port of Estonia, and *Riga*, the capital and chief port of Latvia, have recently become the Baltic outlets for the Russian trade. *Murmansk* is the only ice free port throughout the entire length of the northern coastline. *Astrakhan* is the chief Caspian Sea port. On the Black Sea the important ports are *Odessa*, *Batum*, *Acherch* and *Sevastopol*. On the Pacific coast the only port is *Vladivostok*. For the U.S.S.R. which is five times larger than India the number of ports is definitely meagre.

(4) *UNDEVELOPED COMMUNICATIONS*—The vast size of the U.S.S.R. makes the question of communications one of the utmost importance for its commercial development. The marshy character of a large part of the surface, and snowfall during winter have stood in the way of construction of roads. The total mileage of metalled and unmetalled roads in U.S.S.R. is 8,49,528 miles. The rivers are mostly winding and shallow, emptying themselves either into inland seas or into the ice-bound Arctic Ocean. Besides, most of them are frozen during winter months. Thus the rivers are not very helpful as natural highways of commerce. The Volga, its principal river, with tributaries affords more than 7,000 miles of inland navigation. The Don, Dnieper, Dniester, Bug, Donetz, Ural, Syr, Amu, Amur, Onega, Dvina, Ob, Yenisei and Lena with their tributaries are navigable only for some months of the year. The total mileage of navigable waterways of U.S.S.R. is 70,173 miles. Recently improvements in the water transport system of the country have been effected by constructing a few canals like Don-Volga, White Sea-Baltic Sea, Moscow-Volga, etc. Railway development is meagre in comparison to the size of the country. Its railway mileage is approximately 66,447 miles as against that of 43,000 miles in undivided India.

(5) *ILLITERACY AND POVERTY*—The autocratic and exploiting Czarist regime up to the revolution of 1917 kept the general masses poor and illiterate. The extreme poverty and illiteracy of the masses made development of industries by the the people to supply their needs impossible.

(6) *RICH SOIL*—The Black-earth belt of southern Russia and Siberia produces enough agricultural crops with very little labour and the meagre requirements of the people were easily met by cottage industries. Thus the necessity for developing manufacturing industries on a large scale did not arise.

(7) *INADEQUATE CAPITAL*—Capital resources of Russia are not great and are proving insufficient for its industrial growth.

AGRICULTURE*—Agriculture is the chief occupation of the major portion of the people. Nearly 12 per cent of the total territory is arable land and cereal crops occupy over 75 per cent of the total sown area. Wheat, rye, barley, oats and maize are extensively grown. The U.S.S.R. occupies the foremost position in the production of wheat, rye and oats in the world. Wheat is grown mainly in the black earth belt of Ukraine, Kazakh and Orenburg regions in the south. In the production of barley the U.S.S.R. is close second to China. Barley is grown along with wheat on poorer soils on the black-earth belt and on the adjoining northern regions of the wheat belt. On warmer southern side of the wheat belt maize is extensively grown and oats and rye occupy the northern cooler side of the wheat belt. In the production of sugar beet and potatoes it is easily the world's leader. Sugar beet is cultivated mainly in Ukraine and Trans-Caucasian belt. Of the industrial crops cotton, flax and hemp are important. The U.S.S.R. occupies the fourth place in the world as a producer of cotton. Cotton is chiefly grown in Uzbekistan, Turkmenistan, Tazikistan and Kazakhstan. Flax and hemp are chiefly grown in the Baltic sea coast regions. Tea, tobacco and rice are also important.

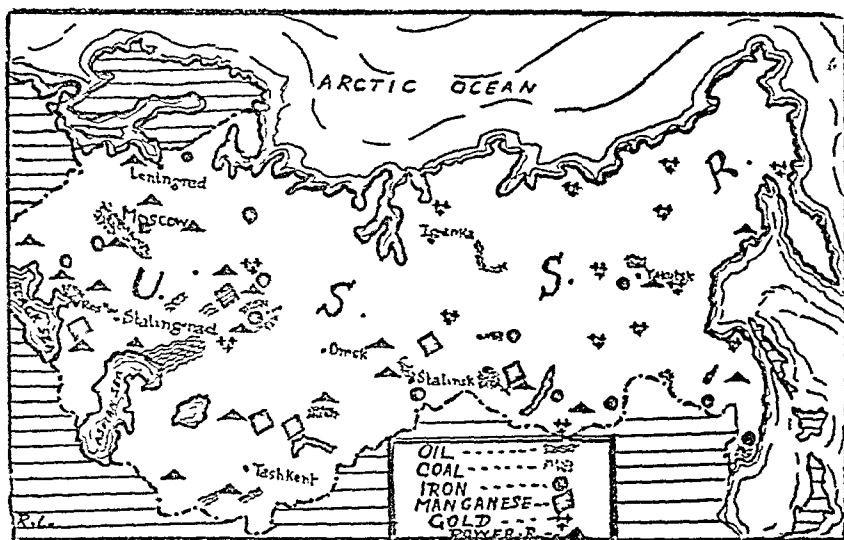
*Before the advent of the Soviet regime the system of cultivation followed in U.S.S.R. was primitive and unscientific. The yield per acre was very low and compared very unfavourably with that of any other country in Europe. Under the First Five-year Plan (1927-32) the agricultural system was reorganised with a view to increasing the total output of agricultural products. *Kolkhozes* (collective farms) and *Sovkhozes* (State farms) were established. Under *Kolkhozes* the cultivators jointly cultivate their small holdings on a co-operative basis by adopting up-to-date methods and using modern machineries. They are helped by the State with supplies of seeds, fertilisers, tractors, machineries etc. *Sovkhozes* are State farms worked by the trained staff appointed by the Government. They are mostly demonstrative and experimental farms to serve as models for local farmers. They preponderate in the south-eastern part of Russia as well as in Siberia.

Under successive Five-year Plans U.S.S.R. has more than doubled her agricultural production during last two decades. The special measures she adopted for improvement of her agriculture are of the following nature —

- (i) Reclamation of waste and fallow lands,
- (ii) Provision of irrigational facilities, fertilisers, better seeds (varna bred and hybrid seeds), farm implements, tractors etc.,
- (iii) Rotation of crops,
- (iv) Elaborate arrangement of agricultural research,
- (v) Large scale farming through collective farms on scientific lines etc.

PASTORAL INDUSTRY—Russia is noted for its fur-bearing animals, for which she is the leading producer of fur in the world. Its dairy industry and pastoral industry are equally notable, as enough pastoral grounds (about 11 per cent. of the total territory) are devoted for the same. In southern Siberia, Trans-Baikal, and in the Steppelands of Kazakhstan pastoral industry has developed, but the pastoral products are mainly used for local consumption.

FORESTS—The U.S.S.R. occupies the leading position in the production of timber in the world. Nearly 40 per cent. of its total territory is covered with forests. The vast coniferous forest belt—nearly 600 miles deep—extends over 3,600 miles from the borders of Finland to the Pacific Ocean. Its forests comprise over 25 per cent. of the total forest-lands of the world. Pine, juniper, fir, spruce and larch are its principal forest trees.



U.S.S.R. (Mineral)

MINING INDUSTRY—Mineral wealth of the U.S.S.R. is considerable. It is the largest producer of manganese, the second largest producer of platinum, the third largest producer of petroleum, coal and iron ores, and the fourth largest producer of gold in the world. "Soviet Scientists claim that the U.S.S.R. contains 20 per cent. of the world's coal deposits, 58.7 per cent. of its oil, 53 per cent. of its iron ore, and 76.7 per cent. of its

phosphates' The USSR produces over 10 per cent of the world's total output of *COAL*. European Russia has three great coal basins —(1) the Pechora basin lying in the extreme north-east in the Arctic region, (2) the Tula basin lying south of Moscow, and (3) the Don-Donetz basin lying in the south near the Black Sea. Of these coal fields the Don-Donetz basin is by far the most important and productive. In Asiatic Russia the most important is the great coal field of the Kuznetsk basin on the south-eastern margin of the west-Siberian plain. On the eastern flanks of the Ural mountains there is an important coal field. In central Siberia there are large reserves of coal on the Tunguska, Lensk, Minusinsk, Irkutsk and Kansk basins. There is also a coal field in the island of Sakhalin in the Far East.

The USSR ranks third among the world producers of *OIL*. The most important oil-field is lying to the south of the Caucasus mountains near Baku. Another field is worked near Tiflis. On the northern side the important oilfield is at Grozny. There are some small wells worked near Maikop. On both sides of the Ural mountains there exist oilfields. Petroleum is also found in Sakhalin.

The USSR ranks third in the list of the world's producers of *IRON ORES*. It is also one of the largest producers of iron and steel. The principal iron ore mining regions are (i) Kola Peninsula in the north, (ii) Krivoi Rog in the Ukraine, (iii) the Ural mountain districts, and (iv) the Kuznetsk basin in western Siberia.

Other important minerals are gold, platinum, manganese, copper, nickel, bauxite, lead, zinc and asbestos. The USSR produces more than 33 per cent of the world's total output of platinum from the Ural mountain districts. It also produces nearly 60 per cent of the total world output of *MANGANESE* from Georgia and Nikopol districts of the Trans-Caucasus region. Large deposits of *COPPER* exist in Tunguska, Khabarovsk, Altai and Yenisei regions. *GOLD* mines exist in the Caucasus and Ural mountains, in the Lena basin in Central Siberia, in Tadzhikistan, and in the lake areas of the Baikal and Balkhas. Besides, *NICKEL* is available in Kola Peninsula and the Ural mountains, *ALUMINIUM* in Ural mountains, *LEAD* in Caucasus, *LEAD* and *ZINC* in Uzbekistan, Tadzhikistan, the lake areas of Baikal and Balkhas and in the Donetz basin.

MANUFACTURING INDUSTRY—The presence of iron ores in close proximity to the coal mines has enabled Russia to make some progress in industry in recent years. The industry of the U.S.S.R. can be best described in relation to industrial areas. *THE TULA INDUSTRIAL AREA* is important for the manufactures of cotton, chemicals, motor cars, locomotive engines, farm implements, machineries, etc. Moscow, Tula, Yaroslavl, Gorky and Kalinin are important industrial centres. Gorky is the chief automobile manufacturing centre of Russia.

The Leningrad industrial area is noted for shipbuilding industry. Textile, paper, chemical and other miscellaneous industries are found here.

The Don-Donetz area is well known for its iron and steel industry. The world's largest locomotive works are localised at Voroshilovgrad. Rostov is noted for manufacture of agricultural machineries.

The Ural mountain regions have grown important in recent years. This area is specially noted for iron and steel industry. Magnitogorsk is an important centre for iron and steel industry.

The Kuzbass industrial area has developed with the aid of coal from Kuznetsk coal-fields. Cotton textile, oil refining and other miscellaneous industries have developed in this area. Stalinsk is an important centre in this region.

For some years past Russia has been showing a tendency towards establishing industrial organisations in the eastern half of the country particularly around the Urals and in Siberia. The reasons for this are :—

(i) *Fuller utilisation of natural resources of Siberia and eastern Russia ;*

(ii) *Even distribution of industrial production as between different areas so as to relieve undue pressure on any particular region and also to have more equitable distribution of employment ; and*

(iii) *Safety from an enemy attack from the west.*

COMMERCE—The U.S.S.R. is almost a self-sufficing country. Barring a few tropical and equatorial products like rubber, jute, tea, cocoa and coffee and a few minerals like tin and mica its entire total requirements are met by domestic output. Foreign commerce thus plays an insignificant part in the volume of total trade of the country. The whole of international trade is state-

controlled. Its principal exports are mineral and agricultural products like petroleum, manganese, timber, furs, flax, wheat, sugar and oats. Its imports comprise machine tools, non-ferrous metals, rubber, cocoa, coffee and electrical machinery and apparatus. Foreign trade is carried on mainly with the U.S.A., Great Britain and Germany.

FIVE YEAR PLANS—The U.S.S.R. has vast agricultural and mineral resources but its industrial development in spite of all the natural advantages is insignificant even now.

Russia prior to the revolution of 1917 was essentially an agricultural country with a limited development of industries. By means of systematic planning, however, its output of both agricultural and industrial products is far in excess of its pre-war production.

The first Five year Plan (1927-32) aimed at establishing key industries to produce supplies of mechanical power and basic materials like steel, cement, chemicals, etc. on sufficiently large scale to ensure the rapid industrialisation of the Soviet Union. The plan also involved the reorganisation of agriculture into collective and state farms and the adoption of up to date methods in its working.

The second Five year Plan (1932-37) was adopted to make the country industrially self-sufficient. It wanted in the first place to establish local industry to supply local markets, a requirement very important in a country of such vast distances as the U.S.S.R. It also attempted to utilise to the full its raw materials and labour resources in the different parts of the country in such a way as to have a balanced economy. The success of the first two plans would be evident from the fact that during 1927-37 its production of iron and steel increased five fold, that of cement six fold, etc.

The success of the first two plans led to the formulation and adoption of the third Five year Plan (1937-42) which was more ambitious than the first two. The Union was working the third plan when the war broke out.

After the Second World War the U.S.S.R. adopted the fourth Five year Plan (1946-50). The principal aims of the fourth Plan were the rehabilitation and development of the war-damaged national economy of the country. The immediate emphasis was

on the rebuilding of bombed and scorched industrial areas, particularly Moscow and Don-Donetz basins. The long-term aim, however, was to accelerate the pace of progress of agricultural and industrial production. "The main economic and political purpose of the Five-year Plan of the U.S.S.R. for 1946-50 is to rehabilitate the war-ravaged regions of the country, to restore industry and agriculture to their pre-war level, and then to surpass this level considerably."

Recently the fifth Five-year Plan (1951-56) has been adopted. The principal aims of the fifth Plan are (i) increased output of industrial products, (ii) extension of railway lines, (iii) development and expansion of port facilities, and (iv) improvement of agricultural production by irrigation, etc.

PORTS AND TOWNS—*Moscow*, the capital of the Union, is the chief industrial centre and the largest town with a population over four and a half millions. It occupies a well-protected position on the high bank of the Moscow river. It has developed varied industries like textile, chemical, engineering, clothing, leather, etc. It is also the centre of its railway system. *Leningrad*, formerly the capital of Russia, is its principal seaport. Situated at the head of the Gulf of Finland it is the natural outlet of north-western Russia for trade with European countries. Shipbuilding industry is by far the most important. Many other manufacturing industries have developed here. It is the chief commercial and manufacturing centre in the north. *Odessa*, situated on the east of the mouth of the Dneister, is the chief Black Sea port of Russia. It is its chief wheat-exporting port. *Astrakhan*, situated near the mouth of the Volga, is the chief Caspian Sea port. It facilitates trade with Persia and Central Asia. *Baku*, on the Caspian Sea, is the most important oil producing centre in Trans-Caucasia. There is an important oil-pipe line from Baku to Batum on the Black Sea coast. *Archangel*, situated on the White Sea, is an important port in the north for export of timber, tar, turpentine and gums. The port is open during summer months only. *Murmansk*, situated in Kola Peninsula, is an important ice-free port on the north. It has also an extensive export trade in timber. *Riga*, formerly the capital of Latvia, is now-a-days an important Russian port on the Baltic Sea. It exports flax,

hemp, dairy produce and timber. It is ice free for the greater part of the year. Tallin (Revel) formerly the capital and chief port of Estonia has now become an important Baltic port of Russia. It is situated on the Gulf of Finland. Memel formerly a port of Lithuania has now come to be a Baltic port for Russia. Tula is the centre of iron and steel industry. It is said to be the 'Jamshedpur of Russia'. Kiev, on the Dneiper is an important grain centre of Ukraine. It is well known for its fine churches. Dnepropetrovsk is another important town and industrial centre on the Dneiper. It has an important railway wagon and engineering works. Vladivostok is the most important Pacific port of Russia. It is also the eastern terminus of the Trans-Siberian Railway. The port is open throughout the year. It also serves the fertile regions of Manchukuo.



U.S.S.R. (Industrial Areas)

GERMANY

Germany, as she is described since 1919, is a shadow of pre-war Germany. As a consequence of her defeat in the First

Great War of 1914-18 she lost much of her territories in Europe and forfeited her colonial Empire. In Europe alone, her loss of territory was over 27,000 square miles, with a population of nearly $6\frac{1}{2}$ millions. Her principal territorial losses comprise (1) Alsace-Lorraine to France; (2) The Saar Basin (re-united with Germany since 1935); (3) Danzig; (4) Part of Upper Silesia to Poland and Czechoslovakia; (5) Part of East Prussia to Poland; (6) Memel; (7) Eupen and Malamedy to Belgium; and (8) Part of Schleswig-Holstein to Denmark. The loss of her colonial Empire in Africa and the Pacific islands means a loss of over one million square miles of area with a population exceeding twelve millions. Since her defeat in the Second Great War in May, 1945 a serious territorial change of Germany of 1939 is likely to come and the future of such a great country is very much uncertain. In view of the fact that the fate of Germany* remains to be decided, the description given here relates to Germany of 1939.

* "By the Potsdam decisions the northern part of the province of East Prussia, including its capital Königsberg, has been transferred to the Soviet Union and its southern part has been transferred to Poland."

Germany proper came to be administered by four principal Allies. "The lines of demarcation run as follows:—

United Kingdom—The former Prussian Provinces of Schleswig—Holstein, Hanover, Westphalia, the governmental districts of Köln, Aachen and Düsseldorf of the former Prussian Rhine Province, the former states of Brunswick, Oldenburg, Lippe, Schaumburg—Lippe and Hamburg.

United States—Bavaria (except town and rural district of Lindau), Baden and Württemberg from the northern frontiers southward to a line extending from west to east, south of Karlsruhe to south of Ulm, the former Land Hessen on the right bank of the Rhine, the former Prussian Province of Hassen—Nassau (except four rural districts) and the Land Bremen.

France—The Palatinate, the former Land Hessen on the left bank of the Rhine, the Saar District, the governmental districts Koblenz and Trier of the former Prussian Rhine Province, Baden and Württemberg from a line extending from west to east, south of Karlsruhe to south of Ulm to their southern frontiers, and the town and rural district of Lindau in Bavaria.

Soviet Union—The portions of the former Prussian Provinces of Pomerania, Brandenburg and Silesia situated on the west bank of the rivers Oder and western Neisse, the former Prussian Province of Saxony and the former Lander Saxony, Thuringia, Mecklenburg and Anhalt."

According to the Potsdam declaration Poland is to occupy and administer the rest part of Germany.

Recently the British, American and French Zones have combined to form "The West German Republic", with its capital at Bonn.

Germany is situated in the heart of the industrial zone of Europe. Her frontiers face eleven countries. Her central situation in industrialised Europe is a key to her economic development. The country has two coastlines—the one bordering the North Sea is smaller but more important while the other is longer and forms the southern shore of the Baltic Sea. Physically Germany can be divided into two main divisions—(i) the northern plain forming part of the Great European plain, and (ii) the southern Highlands forming part of the Alpine mountain chains.

Climatically too the country is divisible into two broad zones. North western Germany experiences for the most part the oceanic climate whereas the south-east and east have the continental climate. Eastwards the climate is more extreme, i.e., the summers tend to be hotter and the winters colder.

Germany is predominantly an industrial country. **THE FACTORS RESPONSIBLE FOR HER INDUSTRIAL GREATNESS ARE —**

(1) *Climate*—Germany is situated in the warm temperate zone and is very close to the sea. The westerly sea winds keep the climatic condition of Germany moderate and temperate.

(2) *Location*—Her central location in the heart of the industrial zone of Europe is a factor contributing greatly to her industrial greatness.

(3) *Cheap power*—She is very well provided with power resources. In production of coal she is the world's fourth largest producer. She has developed much hydro-electric power in the south. Her synthetic petroleum provides enough oil to meet her domestic requirements. The production of power alcohol from potatoes is good enough to meet her sundry requirements. Some amount of petroleum is also produced in the Silesian region. On the whole her power resources may be said to be sufficient so as to provide for her industrial expansion.

(4) *Natural resources*—She is rich in minerals like iron, graphite, salts, copper, zinc, lead and silver. Her vast forest resources in the south provide ample raw materials to feed industries like rayon, paper, etc. Her production of agricultural raw materials like potatoes, hemp and sugar beet is satisfactory.

(5) *Technical education*—Nowhere in the world science is put to the service of industry so much as in Germany. Scientific and technical education is held in high esteem and institutions for the furtherance of such education are scattered throughout the country.

(6) *State paternalism*—The attitude of the government for the promotion of her trade and industry is very much commendable. State patronage in the shape of protection, bounties, subsidies, and furtherance of technical education assisted greatly her industrial growth.

(7) *Racial virtues*—The Germans belong to the Nordic race which is noted in the world for adventure and untiring energy. The racial virtues also contributed greatly to her industrial development.

(8) *Transport facilities*—The development of means of communication in Germany is perfect. Her river system with



Waterways of Germany

interconnecting canals, roadways and railways are highly developed so as to help her industries greatly.

AGRICULTURE—Although Germany is an industrial country, **AGRICULTURE** holds an important place in her national economy. Over 40 per cent of her total landed area is devoted to agricultural use and nearly 20 per cent of her total population is engaged in agriculture. Rye, oats, wheat, barley, potatoes, flax, sugar beet and hay are her principal agricultural products. Germany is one of the world's largest producers of beet sugar. Rye is her principal cereal crop and has the largest acreage under it. It occupies over 20 per cent of her total sown area. Rye and oats are the two cereal crops of northern Germany. Wheat and barley are mainly grown in southern Germany. Potatoes are extensively grown throughout the country both for food and industrial uses. **FORESTS** are important in southern Upland regions. In the west oak, ash, beech, birch, etc. predominate in the hill slopes and coniferous forest trees like pine, fir and larch predominate in the east at higher elevations of the Alpine mountains.

Fishing and pastoral industry is not so important. Her principal fisheries are located in the North Sea and Baltic Sea coasts.

MINERALS—Germany is remarkably rich in her **MINERAL RESOURCES**. Coal, graphite, iron, zinc, lead, copper and salts are her principal mineral products. Some amount of petroleum is also found. In her production of coal she occupies the fourth largest position in the world. Her principal **COAL FIELDS** are (i) the Ruhr and Rhineland coal fields otherwise known as the Westphalian coal field, (ii) the Saar coal fields, (iii) the Saxony coal fields, (iv) the Upper Silesian coal fields and (v) the Lower Silesian coal fields. Her principal **IRON MINING REGIONS** are (i) the Siegerland, (ii) the Harz mountains, and (iii) Silesia. They are not so advantageously placed so as to be in close proximity to coal fields. **PETROLEUM** is mined at Hanover. Potash salts, the basic raw materials for her well-developed chemical industries, are found largely in Hanover and Saxony. **COPPER** is mined in the Harz mountains and Saxony. Zinc and lead are found in Silesia and silver and lead in Saxony. Rock salts are largely present near Schönebeck and Magdeburg. On the whole,

the mineral resources of Germany are said to be adequate for her industrial growth.

INDUSTRIES—The *MANUFACTURING INDUSTRIES* have developed greatly in Germany and the country is predominantly industrial. Over 40 per cent. of her total population is engaged in industrial activities. Her principal manufacturing industries are (i) *Iron and steel*, (ii) *Chemicals*, (iii) *Shipbuilding*, (iv) *Textiles* and (v) *Machineries*. The *IRON AND STEEL INDUSTRY* is chiefly carried on the Rhineland coal-fields. The principal manufacturing centres are Essen, Cologne, Dusseldorf and Elberfeld. *Abundant coal, local ores, cheap water transport facilities and efficient labour* contributed greatly to the development of the industry. Her loss of rich Lorraine iron mines under the Treaty of Versailles seriously affected her iron and steel industry. At present much of the iron ores needed to feed her iron and steel industry is imported from France, Luxembourg, Sweden and Spain. Other centres of iron and steel industry are Mainz near Saar coal-field, Chemnitz in the Saxony coal-field, and Breslau in the Silesia coal-field.

Germany has made a phenomenal progress in *CHEMICAL INDUSTRIES*. Her *rich natural salt deposits, abundant supply of technical and scientific labour, and cheap power* are greatly responsible for the development of her chemical industries. The principal manufacturing centres are Berlin, Stassfurt, Dresden and Frankfurt.

The *ELECTRICAL INDUSTRIES* have greatly developed in the Ruhr industrial area and at Frankfurt and Nuremburg.

SHIPBUILDING INDUSTRY has developed greatly in Germany. Pre-war Germany was the fifth largest country in ownership of mercantile marine tonnage in the world. Her principal shipbuilding centres are (1) Hamburg on the Elbe; (2) Stettin on the Oder; and (3) Bremen on the Weser. *Abundant coal and iron, efficient labour, and natural harbour conditions* greatly helped the development of the industry.

TEXTILE INDUSTRIES are also important. Saxony, Westphalia and Bavaria are the cotton textile regions. Chemnitz, Zwickau and Aachen are the principal manufacturing centres. Raw cotton is imported from the U.S.A., Peru, Brazil and Egypt. *WOOLLEN INDUSTRY* is confined chiefly in Saxony, Thuringia,

Westphalia and Brandenburg *LINEN INDUSTRY* is important in Silesia and Westphalia, Breslau being the important linen centre *SILK AND RAYON INDUSTRY* is important in Hanover Saxony and Bavaria

MACHINERY MANUFACTURING INDUSTRY is usually carried on in the iron and steel producing regions Berlin is the principal centre of her electrical machinery industry Motor cars and locomotive engines are largely constructed in Munich Other machineries and machinery parts are made at Chemnitz. Ordnance factories are important in Essen, Düsseldorf and Duisburg Cutlery industry is also important

Besides these Bavaria, Silesia and Brandenburg are noted for glass and earthenware Baden, Bavaria and Württemberg for watch and toys Bavaria for wines and spirit and Saxony, Silesia Hanover and Pomerania for beet sugar

FOUR YEAR PLANS—The effective economic blockade created by the Allies in the Great War of 1914-18 forced Germany's ultimate defeat since she could not procure her food stuff and essential requirements from overseas sources of supply In 1918, Germany was starved to surrender in 1918 Various experimentations were attempted in the post war days to make her strategically strong and to enhance her agricultural and industrial output The success of the Russian Five year Plan (1927-32) attracted the attention of the National Socialist Party for adoption of similar plans for the country's economic rehabilitation With the rise in power of the National Socialist Party in 1933 the first Four Year Plan was formulated to expedite her economic development and to cope with the growing unemployment problem of post war depression days The first Four year Plan was formulated by a committee of experts comprising economists industrial magnates technical experts, bankers, etc It was announced in 1933 and covered years 1933-36 The Plan aimed at (i) reorganisation of agricultural industry on scientific lines (ii) construction of roadways and buildings, and (iii) rationalisation of industries to eliminate wastes and reduce costs of production. The success of the first Plan in creating more employment and an all round increase in output led to the formulation and adoption of another Four-year Plan in 1936

which covered the years 1937 to 1940. The second Plan was much more comprehensive and ambitious. It provided for (i) diversified industries and (ii) development of industries producing synthetic and 'ersatz' products with an ultimate object of economic sufficiency for the country. The Plan could not be worked due to the intervention of the war of 1939-45.

COMMUNICATIONS—The development of means of *communication* in Germany is great. She has altogether over 132,000 miles of roadways, of which over 73,000 miles are good roads suitable for motor vehicular traffic. Her railway development leaves nothing to be desired and exceeds over 42,000 miles. The development of her inland water communication is also very great and it provides over 10,000 miles of navigable waterways. The Rhine, Elbe, Oder, Weser and Ems—the principal rivers of Germany—are all navigable for long distances. The Rhine is navigable as high as Strasbourg by big barges, the Elbe as high as Prague, and the Oder as high as Breslau. The Ems and Weser are navigable throughout their length. The importance of the rivers has been greatly enhanced by the construction of inter-connecting navigable canals. The Rhine in its lower course passed through the Dutch territory. To create an opening for the Rhine through the German territory the *Dortmund-Ems Canal* has been constructed. The *Rhine-Rhone Canal* through the Doubs has facilitated German trade with the Mediterranean ports. The *Marne-Rhine Canal* through the Marne, the tributary of the Seine, has furthered the growth of Franco-German trade. The *Oder-Vistula Canal* through the Netze encouraged trade between Germany and Poland. The *Ludwig Canal* is important as it joins the Rhine through the Main *via* Nuremburg with the Danube, the most important river of Central Europe. The *Elbe-Trave Canal* has greatly promoted the German trade with the Baltic ports. The *Mittelland Canal* is a central highway from the Ruhr coal fields to Magdeburg, the principal sugar-refining centre. Besides, there are the *Central Canals* largely to facilitate inland traffic. The *Kiel ship-canal* constructed through the German territory shortens the distance between the Baltic and the south-western ports of Europe and is open to big ocean liners. The river system of Germany plays a magnificent part in her inland trade. The development of her air transport is also satisfactory.

TRADE—The foreign trade of the country is great and is carried on mainly with Great Britain, France, Italy, the U.S.A., Belgium, Czechoslovakia, Sweden and Holland. Her principal exports are iron and steel, electrical machineries, chemicals, textiles and paper and her principal imports comprise cereals, dairy products, cotton wool, petroleum, iron ores, rubber, tea and coffee.

PORTS AND TOWNS—**HAMBURG** situated on the mouth of the Elbe is the most important port of Germany and controls over 50 per cent. of the foreign trade of the country. It is a riverine port situated at a distance of over 70 miles from the open sea. It has important shipbuilding yards and numerous industries. It imports coffee, tea, cocoa, tobacco, silk, jute and petroleum. Its exports include manufactured products, sugar, salt, chemicals, etc. Hamburg is an important entrepot for the whole of western Europe. **BREMEN** situated on the Weser at a distance of some 50 miles from the sea is an important port. It is the principal cotton and tobacco port of Germany and specialises in the American trade. **BREMENHAUSEN** is the outport for Bremen. It is a deep and spacious natural harbour and can accommodate the largest vessels. **EMDEN**, situated on the Ems is another important port on the Atlantic coast. Its importance has been greatly enhanced by the construction of the Dortmund-Ems Canal. It is now an outlet for the industrial products of the Rhineland region. **STETTIN** situated on the Oder, is an important port on the Baltic coast. It is the most important timber and grain port of Germany and has an extensive trade with Russia and other Baltic States. It is also one of the most important shipbuilding centres of Germany. **KONIGSBERG** is the most important port of East Prussia. It is the natural outlet of the sea-borne trade of that region. It is a seasonal port and is closed by ice during the winter months. **LUBECK**, situated on the Lubeck bay, is an important port. **BERLIN**, situated on the Spree (a tributary of the Elbe) is the capital and the largest town of Germany. It is also her chief commercial and railway centre. It is the seat of electrical machinery, chemical and textile industries. **COLOGNE**, situated on the Rhine, is an important river port and commercial town. Chemicals, iron and steel and perfumeries are its principal industries. The world-famed perfume 'Eau de Cologne' derives its name from this place. **LEIPZIG** is an im-

portant textile centre. Apart from textile industries, leather, paper and printing industries are also important. It is an important route centre. It has acquired world celebrity for its annual fair which is visited by tourists and visitors from different parts of the world. *DRESDEN*, situated on the Elbe, is the chief town and an important industrial centre of Saxony. It is noted for machinery and woollen industry. *FRANKFURT-ON-MAIN* is noted for chemical, iron and steel and electrical machinery industries. It is a place of pilgrimage to the students of German literature as it is the birth place of their great poet Goethe. *MUNICH* is popularly known as the capital of South Germany. Formerly it was the capital of the rulers of Bavaria. It is the chief commercial and railway centre of that part of Germany. It is noted for its museums and picture galleries. It is the seat of numerous industries of which breweries are most important. *M. GDEBURG*, situated on the Elbe, is an important sugar-refining centre. Chemical industries are also important.

AUSTRIA (OSTMARK)

Austria is a highly mountainous country. Like Switzerland it has no access to the sea. In March, 1938 Austria was seized by Germany to be one of her Federal Divisions. In 1945 the country regained independence with the aid of the Allied Powers. It is now known as the Republic of Ostmark. The climate, on the whole, is continental with hot summers and cold winters. Due to its continental situation rainfall is scanty.

The mountainous character of the country and inadequate rainfall make *agricultural industry* difficult to grow. Cultivation is practised in the north. Potatoes, turnips, barley, oats, wheat, maize, and rye are grown. Its Alpine provinces are covered with forests which provide raw materials to its paper, rayon and wood-pulp industry. *Mining industry* is not very important, although iron, salt, gold, kaolin, zinc, lead, copper and lignite are known to be present. Besides, graphite is also present in large quantities and in its production Austria occupies the foremost position in the world. *Manufactures* are important and have developed due to cheap hydro-electric power. Motor cars, machinery, cutlery and textile goods are its chief manufactures. Its imports are mainly food-stuff and raw materials and its

west (Silesia) coal is mined. *Manufacturing industries* have also developed in Poland, the principal industries being textiles (Lodz, Warsaw, and Bialystok), metallurgical (Warsaw, Lodz and Poznen), and oil refining.

The flat and level land of Poland makes construction of means of *communication* very easy and the country is well served with a network of waterways, roadways and railways. The Vistula with its tributaries provides over 9,000 miles of inland waterways. Its railway mileage is over 15,000 and its roadways exceed 60,000 miles.

Its principal exports are petroleum, wood and wood pulp, paper, beet sugar and cereals. Coal, coke and timber account for one third in value of Poland's total exports. Its imports are cotton, wool, tea, coffee and machinery. Trade is carried on chiefly with Great Britain, Germany and the United States.

PORTS AND TOWNS—*Warsaw*, situated on the Vistula, is the capital and the principal railway centre. It is also an important manufacturing town and commercial centre. Textile industries are important here. *Gdynia*, situated on the Gulf of Danzig is the only port of Poland. Due to the establishment of Danzig as a free city it was developed as a port and at present serves as the only outlet for the Polish trade. *Lodz* is an important centre of textile industries. Cotton, woollen and linen goods are its principal manufactures. *Cracow*, situated on the Polish section of the Silesian coal field is an important industrial centre. Metallurgical and chemical industries are important.

DANZIG—Danzig is situated on the Baltic coast between Poland and eastern Prussia with an area of nearly 750 sq. miles. It was formerly a part of Germany but it was made a free city under the League of Nations. Situated at the mouth of the river Vistula it serves as a natural outlet for Poland. Its principal exports are beet sugar, coal, timber, wheat and iron. It has well developed shipbuilding, engineering and chemical industries. Its importance has been greatly lessened by the development of the Polish port of Gdynia.

CZECHOSLOVAKIA

The Republic of Czechoslovakia was created in 1918 out of the territories of Austro-Hungarian Empire and a part of

Germany. By the Treaty of St. Germain in 1919, it was formally recognised as an independent state by the Allied and Associated powers. Like Austria and Hungary, it is a land-locked country and has no opening to the sea.

The country is highly mountainous and its climate is of continental type. Rainfall is moderate and falls mostly in summer.

AGRICULTURE—In spite of its mountainous character the country is essentially agricultural. Nearly 40 per cent. of the population is engaged in *agriculture* and over 41 per cent. of the total land area is devoted to agricultural use. The broad valleys of the rivers which drain the plateau of Bohemia and the Moravian lowlands have rich alluvial soils and produce crops of very high quality. Wheat, barley, rye, maize, tobacco, sugar-beet, potatoes, flax and hemp are the typical agricultural products. Vines, cherries, apples and plums are also grown in the warmer south. *Pastoral industry* is also important and is practised in the hill slopes.

FORESTS—*Forests* cover nearly 33 per cent. of the total land area. Czechoslovakia is one of the richly wooded countries in Europe and lumbering is an important industry of the country. Numerous industries like toys, paper, match, furniture-making, etc. are dependent on its forest products.

MINERALS—*MINERAL WEALTH* of Czechoslovakia is considerable. Of the minerals coal, iron, graphite, copper, lead, silver, petroleum and rock salt are important. Coal (lignite) is found in large quantities in Bohemia and Moravia. Ostrava, Falknov, Carlsbad and Teplice are important coal-mining regions. Iron ores are mined near Prague (Praha) and petroleum in Moravia.

INDUSTRIES—*MANUFACTURING INDUSTRIES* are highly developed in Czechoslovakia. Iron and steel, textiles, glass and porcelain, leather and shoes, pencils and toys are the principal manufactures of the country. Iron and steel industry is highly developed and localised mainly at Prague and Pilsen (Plzen). The world-famed 'Skoda' armament factory is at Pilsen. Bohemia is the chief manufacturing region of Czechoslovakia, and the main factor which has helped Central Bohemia to develop as an important industrial region is the existence of coal, iron, water-power and raw materials in close proximity to one another.

Prague, situated in Bohemia is the capital and the principal industrial centre. Cotton, woollen and linen manufactures are localised here. Iron and steel industry is also important here. Besides, glass and porcelain manufacturing and pencil making from local supplies of wood and graphite are the other important industries developed in Bohemia.

PORTS AND TOWNS—*Bruno* (Brunn), situated in the south of Bohemia is another important industrial centre. Textile industries in this region are important. *Pilsen* is the seat of Skoda iron and steel works. It is also noted for brewing and distilling works. *Zlin* is the chief centre of boots, shoes and leather industry. It is the seat of the world famed Bata shoe factory. *Bratislava* (Pressburg) situated on the Danube, is a great river port. It is also an important trading and commercial centre.

COMMUNICATION—Czechoslovakia is not well provided with a network of communication system. The Elbe, Oder and Danube with their tributaries serve to some extent the country's requirements of natural highways of commerce. Railway mileage is meagre and is below 9 000 miles. Roadway development is great in recent years and its total length exceeds 43 000 miles.

TRADE—Czechoslovakia has no opening to the sea and most of its foreign trade is carried on through land routes. Its principal exports comprise textile goods, hardware, glass, porcelain, leather and leather goods etc., while the principal imports consist of iron ores, cotton and food stuffs.

GERMAN OCCUPATION*—In September 1939 Germany occupied Czechoslovakia. Its occupation by Germany was based mainly on economic considerations. The possession of Czechoslovakia would assure Germany with an adequate supply of food stuffs which are so very essential to feed her growing industrial population. Czechoslovakia is a country with potentialities of further agricultural development. The broad valleys of the rivers which drain the plateau of Bohemia and the Moravian lowlands have very rich alluvial soils and produce crops of very

* The Sudeten German districts of Czechoslovakia were ceded to Germany by the Munich Agreement in 1939 between Germany, Great Britain, France and Italy. Hitler broke the Agreement through his seizure of what was left of Czechoslovakia in March 1945. The country was liberated from enemy occupation in 1945 and after the second World War Czechoslovakia got back Sudeten districts.

high quality. Wheat, barley, sugar-beet, potatoes and other cereals can be grown there without any great difficulty. Pastoral industry can also be practised with convenience. Again Czechoslovakia possesses mineral resources of great value and consequently its acquisition by Germany will be of direct advantage to her manufacturing industries. The plateau of Bohemia and the valley of Moravia have numerous rich coal-fields and iron mines which will prove of inestimable value to Germany. Besides, Slovakia has valuable forest resources. The addition of Czechoslovakia to the German "Reich" thus would have helped the self-sufficiency of Germany in timber resources.

RUMANIA

Rumania is situated in the east of Hungary. It occupies a vast stretch of plain land as between the Dniester on the north and the Danube on the south. It borders the Black Sea on the east. The Carpathian mountains and the Transylvanian Alps divide the country into distinct halves. Physically the country is divided into *two* broad regions—(i) the Upland regions of the Carpathian mountains and the Transylvanian Alps, and (ii) the plains of Wallachia, Bessarabia, Moldavia and the Banat. Rumania experiences the typical continental type of climate with hot summers and cold winters.

Rumania is essentially an *agricultural* country. Over 80 per cent. of the population is engaged in *agriculture*. Maize, wheat, barley, oats, sugar-beet and potatoes are extensively grown. Vines are also grown. *Pastoral industry* is also important. Cattle are reared on the plains and hill slopes and sheep are reared in the hills. *Forests* occupy a significant place in the national economy of the country and forest products constitute an important item of its exports.

Mineral wealth of Rumania is considerable. Of the mineral resources petroleum is by far the most important. It is the fifth largest producer of petroleum in the world. Its oil mines are chiefly located on the hill slopes of the Carpathian mountains and the Transylvanian Alps. Bacau, Ploesti, Prahova and Dambovitza are the chief petroleum mining centres. Constanta, situated on the Black Sea coast, in the chief oil exporting port.

It is connected by pipe lines with the oil-producing regions. Natural gas is also important. Other minerals are iron, copper, lead, zinc, rock salt and coal. Salt mining is a government monopoly and it is mined mainly in the regions of the lower Carpathians. Iron, copper, lead, silver, gold and coal mines are worked in Transylvania and the Banat.

ITALY

Italy is a peninsula in the Mediterranean Sea. In area it is nearly equal to the British Isles. Physically it can be divided into *three* broad regions—(i) the northern mountain regions, (ii) the Plain of Lombardy and (iii) the mountainous peninsula. The Plain of Lombardy is drained by the Po river system and is otherwise known as the Po valley. The peninsular Italy enjoys for the most part a Mediterranean type of climate. The rest of Italy experiences a continental type of climate.

Most of the population of Italy is concentrated in the Lombardy Plain, the most fertile area. The rich level land is greatly responsible for agricultural development. The density of population, on the whole, is great and is over 300 per square mile.

AGRICULTURE is the chief occupation of the people of the country. Nearly 50 per cent. of the people is engaged in agriculture and over 40 per cent. of the land is devoted to cultivation. The climate and soil are sufficiently good to allow successful development of agricultural industry. Wheat is the principal cereal crop and occupies over 30 per cent. of the area sown. In the Po valley, besides wheat, maize, sugar-beet, oats, flax, hemp and rice are grown. In Apulia, a southern province of Italy, hard wheat is grown. Macaroni, a favourite food of the Italians, is manufactured from hard wheat. In the peninsular regions and Alpine hill slopes Mediterranean fruits such as vines, olives, figs, etc., are grown. Sicily also produces large quantity of Mediterranean fruits, but it is wellknown for its lemons. Cultivation of mulberry plants for rearing of silk worms is also greatly practised. Italy is the largest producer of raw silk in Europe. The Lombardy Plain and the valleys of the Alpine regions are important for silk production. *The pastoral industry* is relatively unimportant. The Alpine valleys and the Appennine hill slopes are the chief pastoral regions and some wool is grown.

Italy is deficient in **MINERAL WEALTH**. Coal is absent, and though some iron, manganese and copper are mined in Sicily and Tuscany, the output is insignificant. In Elba island and Tuscany good quality iron ores are raised. Sulphur is the most important mineral worked in Sicily and other volcanic areas. Italy is an important world-producer of mercury. It is chiefly worked in Idria and Tuscany. High quality marble is quarried from Carrara mines. Small quantity of manganese, lead, zinc, aluminium and copper is also mined. Bauxite is mined in Istria and Abruzzes.

Inspite of her inadequacy of natural resources and almost complete absence of coal, Italy has grown to be one of the great industrial countries of the world. **THE REASONS ACCOUNTING FOR THE GROWTH OF INDUSTRIES ARE:—**

(1) *Climate*—Italy for the most part enjoys the Mediterranean type of climate which is ideal for all-the-year-round activity.

(2) *Cheap hydro-electric power*—The rugged surface and innumerable streams greatly favoured installations of hydro-

electric power stations. They provide cheap power to its industrial establishments.

(3) *Density of population*—The high density of population provides ample supply of cheap labour to industries. Italians by nature are intelligent and hard working. Thus the human factor is all the more important for its industrial growth.

(4) *Transport*—The transport system is also well organised. In area Italy is nearly equal to the state of Bombay. But though so small it has road mileage of 126 830 as against that of 350 000 in India. With the exception of the Po, Tiber, Arno and Ticino, the rivers are mostly useless for navigation purposes for the mountainous relief of the country.

Silk, rayon, cotton, woollen and wine industries are by far the most important. Italy is noted for the production of both natural and artificial silk. Silk manufacturing is important in the Lombardy Plain. Milan and Bergamo are the two important centres. Cotton industry has flourished in Milan, Genoa and Turin and woollens are manufactured at Milan and Biella. Italy is second only to France in wine manufacturing. Most of its output is locally consumed. Statuary porcelain and glassware manufacturing is also important.

Although the Alps form a great barrier to the flow of trade between northern Europe and Italy, the importance of the passes and tunnels can scarcely be over-estimated. Through the tunnels the railway routes bring Italy into the closest touch with all her European neighbours. Across the Apennines there are several lines joining the two main through routes which follow the coastal plains throughout the length of Italy. The rivers of northern Italy are useful for navigation. The peninsular rivers, however, are so rapid as to be of little use for navigation. The canals are chiefly in the lowland of the north and are of some local importance.

TRADE—The principal imports of Italy comprise coal, cotton, machinery, iron and steel, petroleum, food stuff and wood and its chief exports are silk, rayon, fresh and dried fruits, porcelain, glasswares, woollen textiles and luxury goods. Its foreign trade is mainly with the U.S.A., Germany, Argentina, France and Great Britain.

PORTS AND TOWNS—*VENICE*, situated on the head of the Gulf of Venice, is the chief port for the Lombardy Plain. In early

days Venice was the principal entrepot trade centre for Far Eastern products and the Venetians were noted for their ships and sailors. *GENOA*, situated on the head of the Gulf of Genoa, is the principal port of Italy. It does much of the trade with Europe and America. It serves the industrial zone of Turin and Milan. *NAPLES*, situated on the Bay of Naples, is an important port of Peninsular Italy. It is a very old city and is noted for its fine buildings, picture galleries, etc. *BRINDISI*, near the heel of Italy, is the most important mail and passenger port. By the overland route a great saving in time can be effected by passengers bound for London and Paris. *MILAN* is the second largest city of Italy. It grew as a market town to facilitate exchange of products between hillmen and the people of the plains. It is the principal manufacturing and industrial centre of Italy. Silk and cotton textile, cutlery and railway rolling stock are its principal industries. *TURIN*, situated on the north-western part of the plain of Lombardy, is another important industrial centre. It is also noted for silk industry. Chemical and motor car industry is also famous. It is the seat of the Fiat motor car works.

TRIESTE—Trieste, situated at the head of the Adriatic Sea, was an important port of Italy. Before the world war of 1914-18 it belonged to Austria. By the peace treaty with Italy in 1947 "the Free City of Trieste was constituted as a compromise between the conflicting Italian and Yugoslav claims to the city and its port. It acts as an outlet for the Central Danube basin.

SWITZERLAND

Switzerland, situated in the heart of the Alpine lands, is a highly mountainous country and over 22 per cent. of the total area is barren, and unsuited for any use. It has no access to the sea. Its climate, on the whole, is continental, there being considerable local variations due to its relief.

The mountainous nature of the country makes *agriculture* relatively unimportant. Only 5 per cent. of the total area is suitable for arable farming and about 20 per cent. of the population is engaged in agricultural occupation. Wheat, potatoes, sugar-beet and vegetables are important. Wheat occupies nearly 50 per cent. of the total acreage sown. Apples, pears, grapes

and lemons are also grown. *Pastoral industry* is important. Nearly 50 per cent of the total area is devoted to pasturage. Its dairy industry is famous in the world. Vevey is the centre of the famous Nestle's milk industry. Cheese, condensed and powdered milk and butter are largely raised and these constitute the principal items of export of the country. *Forests* are important and cover nearly 2 per cent of the total area.



Switzerland (Hydro Electric Stations)

Switzerland lacks in mineral wealth. Coal is conspicuous by its absence. Some amount of iron ore and manganese ore are mined in Gonzen mines in the province of St. Gallen.

In spite of its mountainous character and poverty in coal and other essential minerals, Switzerland is a highly industrialised country. Its location in the heart of the industrial zone of Europe, its abundant supply of cheap hydro-electric power provided by its river system, and its highly skilled labour force account for its industrial strength. The government takes sympathetic interest in the development of its industries. For a small country like

Switzerland the *communication* system may be said to be adequate. The Swiss rivers are useless for navigation whilst the relief makes canal construction on any extensive scale quite impossible. Yet inspite of its mountainous nature Switzerland has a well-developed network of roadways and railways which help greatly its commerce. The railway mileage is about 3,245 and most of the railways are run by electricity. There are over 10,000 miles of main roads. Watch and clock-making, manufactures of electrical machineries and parts, chemicals, and cotton and silk goods are the principal industries of Switzerland. Most of the industries are carried on in the homes of cottage industrialists by the aid of cheap hydro-electric power. Manufactures of silk and cotton are mostly carried on at Zurich, Basle and Berne. Manufactures of watches and clocks are mostly worked at Geneva and Berne. Chemical industry is localised at Basle.

The principal imports are cereals, cotton, silk, metals and heavy chemicals ; and its exports include watches and clocks, silk goods, electrical machineries, embroideries and laces, condensed and powdered milk, cheese, etc. Its foreign trade is mainly with Germany, Italy and France.

PORTS AND TOWNS—*BERNE*, situated on the Aar river, is the capital and an important manufacturing centre. It has silk, cotton, watch and electrical machinery manufacturing industries. *GENEVA*, situated on the southern terminus of Lake Geneva, was the seat of the League of Nations. Manufactures of watches and clocks are important. *ZURICH*, situated on Lake Zurich, is the largest town and chief manufacturing centre. It has silk, cotton and machinery manufacturing industry. It is an important railway centre. *BASLE*, situated on the Rhine, is an important manufacturing centre and has silk, cotton, machinery and chemical industries. It is the gateway to Switzerland from north-western Europe. It is also an important railway centre.

THE BALKAN PENINSULA

The Balkan Peninsula is surrounded by the Adriatic Sea, Ionian Sea, Aegean Sea, Black Sea and the Sea of Marmara. Politically it is divided into Yugoslavia, Bulgaria, Albania, Greece and Turkey-in-Europe. They are jointly known as the Balkan States.

The Balkan Peninsula for the most part is very mountainous. Its climate is Mediterranean with certain modifications according to altitude. Agriculture is the principal occupation of its people.

YUGOSLAVIA—Yugoslavia was created out of the territories of the Austro-Hungarian Empire after the first World War of 1914-18. With the exception of the northern plain the country is very much mountainous.

Agriculture is easily the chief occupation giving employment to 80 per cent of the population. The principal products are wheat, maize, barley, rye and sugar beet in the north, and fruits, vine and tobacco in the south. Rearing of silk worms is also important. Forests exist in the mountain slopes and beech, oak and fir are the principal trees.

Pastoral industry is also important. Rearing of sheep, goats and cattle provides employment to many. Yugoslavia has considerable mineral resources. Coal, iron, copper, gold, lead and antimony are its principal minerals. *The poverty of the masses, mountainous relief and undeveloped nature of communication system* make their exploitation difficult. Manufacturing industry is therefore little developed. The textile industries have made some headway in recent years.

Yugoslavia has altogether over 7,200 miles of railways and 28,000 miles of roadways. The rivers are few and for the most part unsuited for navigation. The part of the Danube which lies in Yugoslavia is navigable and helps its trade and commerce greatly.

The principal exports comprise Mediterranean fruits, timber, silk and dairy products and its imports are for the most part manufactured products.

BELGRADE is the capital and the principal railway centre. It is situated in the fertile northern plain. Manufacturing industry has developed in its neighbourhood in recent years.

FIUME was formerly an important Adriatic port of Italy. By the Peace treaty with Italy in 1947, Fiume has become an important port of Yugoslavia.

BULGARIA—Bulgaria lies south of Rumania. The Danube for the most part forms its northern boundary. On the east lies the Black Sea. The country can be divided into two

broad regions—(i) Highlands and (ii) Lowlands. The Balkan mountains in the north and the Rhodope mountains in the south comprise the highlands, and the lowlands include the Maritza valley and the Danubian plain. The climate, on the whole, is continental. Only the southern part enjoys the Mediterranean type of climate.

Agriculture is the chief occupation of the people giving employment to 80% of the population. The principal agricultural products are wheat, barley, maize, sugar-beet, hemp, tobacco, rye, rice and cotton. Vines and Mediterranean fruits are also grown in the south. The country is noted for roses. Its *attar* of roses has acquired world-fame and is much sought for in European markets. Rearing of silk worms is also practised.

Forests are important on the lower slopes of the hills. Beech, oak and fir occur in these forests. Over 30 per cent. of the total area is covered with forests. *Pastoral industry* is practised in the mountain valleys in the north. The country is poor in *mineral resources*. Coal is the only mineral found in sufficient quantity but it is of poor quality. Other minerals are aluminium and rock salt. *Manufactures* have developed very little.

Foreign trade is not very important. *Attar* of roses, tobacco, wheat, etc., are its principal exports. The imports comprise manufactured products.

Communication system is not well-developed. Altogether there is over 2,000 miles of railways. All the railways are state-owned.

SOFIA is the capital and chief railway centre. Silk industry has developed in this region. *VARNA* is the principal port on the Black Sea coast. It is the principal outlet for the northern plain.

ALBANIA—Albania is a mountainous country situated on the Adriatic coast between Yugoslavia and Greece. It is a very backward country. Much of the lands remain uncultivated. Waste land forms over 60 per cent. of the total area. The coastal regions are productive of *agricultural crops* like wheat, tobacco, maize, etc. Mediterranean fruits are also important. *Pastoral industry* is by far the most important. Cheese, milk, butter and wool are its principal products.

There are vast tracts of lands under *forests*. Chestnut walnut and oak are its principal trees. Pine beech and fir are found on the higher slopes.

Considerable *mineral wealth* is known to be present but they are mostly unexploited. Copper salt coal and petroleum mines are somewhat worked in these years. Manufactures are unimportant.

The communication system is very poorly developed. There is as yet a few hundred miles of railways. The road mileage is below 2 000. Thus on the whole the means of transport is inadequate.

Foreign commerce of the country is unimportant.

DURAZZO is the chief port. In recent years it has been connected by railways with Tirana the capital and chief commercial centre of the country. *SCUTARI* situated on the lake of the same name is the most important town and commercial centre in the north.

GREECE—Greece comprises the mainland and a group of islands situated at between the Ionian Sea and the Aegean Sea. The mainland occupies the southern part of the Balkan Peninsula. The country for the most part is mountainous and experiences the typical Mediterranean type of climate. Its coast line is very much broken and makes the Grecians essentially a sea faring nation.

Although the country is very much mountainous *agriculture* is practised wherever possible and it constitutes the principal occupation of the people of the country. Only 20 per cent of the total area is cultivable. Wheat barley maize oats tobacco and cotton constitute its principal agricultural products. Grecian tobacco is world famed for its fine aroma. Mediterranean fruits like vines olives lemons figs oranges etc are extensively grown. Silk production is also important. Rearing of sheep and goats is an important industry carried on in the plateaus and hill slopes.

Greece is relatively poor in *minerals*. Some amount of iron, copper lead zinc nickel silver and manganese is present. But its minerals are not yet fully exploited. *Manufactures* are not very developed. Wine manufacturing and textiles are its principal industries.

The mountainous character of the country makes development of *communication system* difficult. The rivers are swift-running and full of rapids. They are useless for navigation purposes. Its railway mileage is below 2,000 and most of its railways is confined to the coastal plains. There are over 8,000 miles of roadways open to traffic in Greece.

Its exports mainly comprise currants, raisins, tobacco, fruits and silk, and its imports include hardware and machinery, textile goods, coal, etc. Foreign trade is carried on with Germany, Italy, the U.S.A. and the United Kingdom.

ATHENS is the capital and chief port of Greece. It is the natural outlet for southern Greece, and it exports much amount of tobacco and currants. *SALONIKA* is an important port of northern Greece. It also serves as an outlet for much of the trade of Yugoslavia. It has important carpet, tobacco and leather industries.

TURKEY-IN-EUROPE—This region has been dealt in Chapter XV.

SCANDINAVIA

The Scandinavian Peninsula occupies the extreme north-western part of the continental land mass of Europe. It includes Norway and Sweden. The greater part of the Peninsula is mountainous. Its climate for the most part is cool and temperate. It favours growth of coniferous forests.

NORWAY—Norway borders the Atlantic Ocean and occupies the whole of the western part of the Scandinavian Peninsula. Though the country is situated in cool temperate zone, its ports are ice-free throughout the year due to warm Gulf Stream washing its shores. The country is very much mountainous. Of the total area, over 70 per cent. is unproductive.

In spite of its mountainous character, *agriculture* provides occupation to nearly 30 per cent. of the population. Nearly 4 per cent. of the land is put to arable farming. Agriculture is practised mostly in the Oslo and west coastal plains. Wheat, barley, potatoes, oats and rye are the principal agricultural crops.

Forests constitute the principal source of wealth of the country and their products comprise some 25 per cent. of the

country's total exports. Nearly 25 per cent. of the total area is under forests. Pine, fir, deal, etc., are the principal trees of the forests.

Fishing is an important occupation of the Norwegians. Over 7 per cent. of the population are engaged in fishing. Cod, herring, mackerel and lobsters are the principal catches. Fish and fish products constitute another quarter of the country's exports. Dairy industry is becoming increasingly important. It is carried on along with agriculture.

The *mineral wealth* of Norway is considerable. Iron, copper, nickel, silver, phosphorus and zinc are its principal minerals. Iron ores are found in the north near the frontier of Finland. Copper is mined in the valley of the Glommen. But the total absence of coal accounts for the lack of her metallurgical industry. In recent years the development of cheap hydro-electric power has localised some electro-metallurgical industries in the country.

The cheap hydro-electric power is chiefly responsible for the development of aluminium, electro-chemical, paper and wood-pulp industries in the country. Roros is the chief centre of the Norwegian pulp and paper industry. Among the chemicals produced in the country calcium carbide, agricultural fertilisers, etc., are important.

The development of *communication system* in the country is very poor. Altogether there is over 2,700 miles of railways and nearly 28,000 miles of roadways. Its long ice-free and broken coastline accounts for the sea-faring character of its people. Norway stands fourth in the list of ownership of the mercantile marine in the world.

Its principal exports are timber, wood-pulp, paper, iron ores, fish and fish products, and its imports comprise textile goods, hardware, machinery, tea, coffee, sugar and coal.

PORTS AND TOWNS—**OSLO**, situated in the south end of the Glommen valley, is the capital and the chief commercial and industrial centre of Norway. It is well-served by railways. It is also the chief port of the country. **BERGEN** is an important fishing port. Besides its exports of fish and fish products it also exports much of iron ores and timber. **NARVIK** is its most important northerly port. It exports much of iron ores of

northern Sweden. It remains ice-free throughout the year. *TRODHEIM* is an important fishing port.

SWEDEN—Sweden occupies the eastern part of the Scandinavian peninsula bordering the Baltic sea-board. In natural resources and agricultural development it is more fortunate than Norway. The country has less waste land. Physically it can be divided into *two* main divisions—(i) northern highlands and (ii) southern lowlands and coastal plains. Its climate differs greatly from that of Norway. Being in the rain-shadow area it is drier and experiences greater extremes of temperature.

Agriculture is chief occupation of the people and provides employment to nearly 50 per cent. of the total occupied population. Over 12 per cent. of the total area is put into agricultural use. Oats, wheat, barley, rye, potatoes and sugar-beet are its principal agricultural crops. They are mostly cultivated in the south. Dairy farming is carried on along with agriculture. Cheese, butter and milk are largely raised and are exported to industrial countries of Europe.

Forests occupy an important place in the national economy of the country. Over 50 per cent. of the total area is covered with forests. They yield valuable timber and wood products which constitute nearly 50 per cent. of the total exports of the country. The rivers provide a ready means of transporting the timber and other products.

Mineral wealth of Sweden is considerable. Iron, lead, silver, copper, zinc, manganese and sulphur are its principal minerals. High-grade iron ores are extensively mined in the rich mining district of Gellivara in the north. Copper is mined at Falun. Silver and lead are mined at Salu and zinc at Ammerberg.

Manufacturing industries have developed recently with the aid of cheap hydro-electric power. Electrical machinery, paper, match, wood-pulp and chemicals are its principal industries. Textile industries have also developed. The abundance of iron ore of excellent quality has given rise to an important iron and steel industry, the products of which rank second to timber products in export value. The iron and steel industries are centred at Stockholm, Norrköping and Gotteborg.

The development of *communication system* in Sweden is fairly satisfactory. Most of her railway lines are concentrated in the south and south-east. Its roadway mileage exceeds 56,000 miles.

The principal exports comprise timber and wood products, iron ores, paper, match and chemicals, and its imports comprise hardware, machinery, tea, coffee, rubber and textile materials.

PORTS AND TOWNS—*STOCKHOLM*, situated on the Baltic coast, is the capital of Sweden. It is also an important iron-ore exporting port. Recently it has developed iron and steel industry. *GOTTEBORG*, situated on the mouth of the Gota river, is the chief port. It is well served by railways and inland canals. *MALMO* is another important port on the southern terminus. It is an important passenger traffic port.

FINLAND

Finland is situated on the north of the Gulf of Finland and is the most northerly state of Europe. It is a land full of lakes and rivers and water mass forms over 10 per cent of the total area. The climate is severe with long winters and short summers.

Lumbering is the principal industry of Finland. Nearly 70 per cent of the land area is covered with coniferous forests. Timber, wood pulp, paper, etc., constitute over 30 per cent of the total exports. *Agriculture* is next in importance to forests. Nearly 8 per cent of the land is devoted to agricultural use. It is mostly practised in the south. Rye, barley, oats, potatoes and hay are the principal agricultural crops. Rearing of sheep and cattle is also an important occupation of the people and dairy products constitute valuable exports. *Minerals* are absent. *Manufactures* are poorly developed. Most of its manufacturing industries are concerned with the processing of its forest products.

Inland transport requirements are well served by its interconnected lakes and canals. There are nearly 40,000 miles of roadways. The development of railways is meagre and the railway mileage is 3,670 miles only.

The principal exports are timber, wood-pulp, paper, match, dairy and fish products; and the imports comprise textile goods, hardware, chemicals, machinery, etc.

PORTS AND TOWNS—*HELSINKI*, situated on the Gulf of Finland, is the capital and chief port of Finland. It is also the principal commercial and industrial centre of the country. *ÅBO* (Turku) and *VIBORG* are the two other important ports on the coast of the Gulf of Finland.

THE IBERIAN PENINSULA

The Iberian Peninsula includes Spain and Portugal. It occupies the south-western terminus of the continental land mass of Europe protruding far into the Atlantic Ocean. The Pyrenees separates it from the rest of Europe and forms its northern boundary. Politically the Peninsula is divided into the Republics of Spain and Portugal, and the British possession of Gibraltar. Portugal is situated in the western coast. Gibraltar is a tiny British possession on the Mediterranean coast.

The Peninsula for the most part experiences the Mediterranean type of climate but there is a considerable local variation due to differences in relief and latitude.

SPAIN—Spain is a highly mountainous country. It occupies the greater part of the Iberian Peninsula. In spite of its favourable location in proximity to the world's important trade route, it continues to remain commercially a backward country. *AGRICULTURE* is the principal occupation of the people and it engages over 25 per cent. of the population of the country. Its fertile soil and favourable climate make cultivation of agricultural crops very much easy. Over 30 per cent of the total area is devoted to arable farming and market-gardening. Wheat, barley, oats, rye and rice are the principal cereal crops grown in the country. Mediterranean fruits like olive, orange, vine, lemon, almonds, hazelnuts and peanuts are largely grown. Flax, hemp, pulses, onions and esparto grass are also grown. Spain is the second largest producer of oranges in the world. It is also the largest world-producer of olive. In production of rice it holds

a significant position in the list of European producers. Cultivation of mulberry trees is also important and rearing of silk worm is an important industry of the country.

The mountainous relief and low density of population (144 per sq. mile) make rearing of sheep and cattle a profitable industry for the country. Spain is world famed for its merino sheep wool. Over 40 per cent of the total area is devoted to pasturage.

FORESTS are not important. Cork-oaks grow in hill slopes and Spain is the largest world producer of cork.

Spain is remarkably rich in **MINERALS**. Iron, lead, mercury, copper, silver, zinc and coal are its principal minerals. Iron ores are mined in the Cantabrian mountain districts in the north. They are also worked in Sierra Morena and Sierra Nevada in the south. Copper is found in the Rio Tinto mines in the south. Spain is the world's largest producer of mercury. Almaden mines are its principal producing regions. Other minerals found in Spain are manganese, sulphur, phosphorus, cobalt and rock salt.

MANUFACTURES are not so important. In spite of the fact that large amount of iron ores is annually raised, it has not developed iron and steel industry. *The mountainous character of its relief, unstable government, low density of population, high fertility of the soil, and inadequate communication development are factors responsible for total absence of its iron and steel industry.* Wine-manufacturing is its principal industry. Barcelona and Tarragona are its principal centres. Cotton, woollen, paper, porcelain and glass are also its important industries. Catalonia is the chief centre of cotton and woollen industry.

The means of **COMMUNICATION** are poorly developed. The total railway mileage is over 10,000 miles and the total length of roadways is over 77,000 miles. Due to the mountainous relief of the country, the rivers are not very helpful for its inland trade and commerce. As the bulk of the population is centred in the narrow coastal plains, coastal shipping services are important.

The principal exports comprise metals and metallic ores, fresh and dried fruits, wine, cork and olive oil, and the imports

include machinery and hardware, chemicals, food-stuff, cotton tea, coffee, etc.

PORTS AND TOWNS—*MADRID*, an inland town, is the capital of Spain. It has carpet, tobacco and iron industries. It is also the chief railway centre. The climate is continental with very hot summers and cold winters. *GIBRALTAR*, situated on the narrow strait of the same name, is a British possession. It guards the entrance to the Mediterranean Sea. It is a fine harbour and has an excellent dock accommodation. It is an important British naval station and also a coaling centre. *BARCELONA*, situated on the Mediterranean Sea, is the chief port of Spain and has cotton and linen manufactures. It is the natural outlet for the manufacturing regions of the north. Its principal imports are cotton, wool, hardware and machinery. *CADIZ* is the chief Atlantic port. It serves the fertile plains of Andalusia. It is the chief wine port, exporting much amount of 'sherry', the wine named from the neighbouring producing town of Jerez. *SEVILLE* is an important river port on the Guadalquivir. It is noted for its oranges. It is also an important commercial and industrial centre. *BILBAO*, situated on the Bay of Biscay, is an important port. It exports much iron ores to Great Britain.

PORTUGAL—Portugal occupies the west Atlantic coast of the Iberian Peninsula. It experiences the Mediterranean type of climate. *Agriculture* is the principal industry of the country. Over 50 per cent. of the total area is put into agricultural use. Wheat, maize, oats, barley, rye, rice, potatoes and beans are the principal agricultural crops. Mediterranean fruits such as olive, grapes, lemons, oranges and figs are extensively grown. Nearly 11 per cent. of the total area is devoted to vineyards and fruit trees.

Forests cover over 25 per cent. of the total area. Pine, oak, cork-oak and chestnut are the principal trees. The production of cork, resin and turpentine is an important industry of Portugal. *Fishing industry* is also important. Sardine is the principal catch.

The *mineral wealth* of Portugal is considerable, but its mines are not very much worked. Coal, copper, tin, wolfram, kaolin and sulphur are important minerals.

Manufacturing industries are not so important. Wine-manufacturing, cotton and woollen, porcelain, tile-manufacturing are its principal industries.

The principal exports are cork, wine, turpentine, resin, metallic ores, etc., and the imports comprise coal, cotton, sugar, tea, coffee, etc.

LISBON, situated on the mouth of the Tagus river, is the capital and chief port. It possesses an excellent harbour. It is an important manufacturing centre of Portugal. Cotton, woollen and silk are its principal manufactures. **Oporto**, situated on the Douro river, is the second city and another important port of Portugal. It is world famous for its wine. The Portuguese 'Port' wine derives its name from this port.

FRANCE

France is situated close to Great Britain. Her favourable location in the heart of the industrialised zone of Europe, bordering the Atlantic Ocean on the west and the Mediterranean Sea on the south, has greatly facilitated her industrial and commercial development. But her industrial growth is distinctly different from that of her neighbours—Belgium, Germany, Great Britain and Italy. The characteristic feature of the French industries is her richness of variety and artistic finish. French products are well known for their refinements and elegance. Massive production of standardised products is very little practised. Most of the industrial establishments are of small size and are designed to produce products to meet individual and refined tastes. The absence of massive industries in France is mainly due to (i) *absence of coal*—France is very poorly endowed with coal. Besides, the little coal that the country possesses is located far from her iron mining regions. (ii) *Low density of population*—Her density of population per sq. mile is 199 whereas that of England and Wales is 750. Her fertile soil, favourable climate, rich natural resources and low density of population are in a large measure responsible for small scale industrial establishments. (iii) *Racial characteristics*—The

French are ease-loving people and lag to work under standardised monotony conditions. Besides, their artistic habits and refinements of tastes find expression in varieties of products produced in different, small establishments.

On the basis of relief, France can be divided into *two* broad regions—the lowlands and the highlands. Her western and northern parts constitute the lowlands. Her lowlands may be further sub-divided into *three* great basins—(i) *the Paris or the Seine Basin*; (ii) *the Aquitaine or the Dordogne-Garonne Basin*; and (iii) *the Rhone-Saone Basin*. Her eastern and southern parts constitute the highlands. The highlands may be further sub-divided into (i) *the Central Plateau or the Cevennes mountain districts* in the south-east; (ii) *the Pyrenees* in the south; (iii) *the Vosges and the Juras mountains* in the east; and (iv) *the Alps mountain* in the further south-east. Besides, there is the *Armorican Plateau* comprising Normandy and Brittany located in the north-western part of France.

Climatically too, France is divisible into *two* main regions (i) *the maritime region* and (ii) *the Mediterranean region*. In the west, the north-west and the north, the maritime climate, with Westerly winds blowing in from the Atlantic, prevails. The south and south-east experience the Mediterranean climate with summer drought and winter rainfall. Being located far away from the moderating influence of the sea the eastern part of France experiences continental type of climate. Extreme variation of temperature as between summer and winter months is the characteristic feature of this region.

NATURAL REGIONS—Based on relief and climate, France is divided into the following *nine* regions :—

(i) *The Armorican plateau* in the north-west—It includes the highlands of Normandy and Brittany. Cattle-rearing is the principal occupation of the inhabitants in this region. Fishing industry is also important near the coast.

(ii) *The Paris or the Seine Basin*—It includes the prosperous agricultural plain of northern France. The region is composed of alluvial soil. Wheat, barley, beet, rye, oat, hemp, etc. are its

principal products Iron and steel, cotton textile woollen, luxury goods, etc industries have developed in its western and central parts

(iii) *The Central Plateau*—It is composed of metamorphic rocks. The soil is very much barren and unproductive. Coal, iron and other minerals are present and iron and steel industry has greatly developed in this region



(iv) *The Vosges—Ardennes highlands* in the north east—This region is mostly covered by deciduous and coniferous forests. Iron ores and natural salts are found here in the underlying rocks

(v) *The Aquitaine Basin* in the south-west—It includes the Dordogne and the Garonne basins. The soil is highly fertile and agriculture is greatly developed. Wheat, barley, maize and vines are largely grown. This region is famous for wine-manufacturing.

(vi) *The Rhone-Saone Basin*—This region is important for agriculture as well as manufacturing industries. In the southern part due to the prevalence of the Mediterranean type of climate various kinds of fruits and flowers are extensively grown. Cultivation of mulberry plants is also practised. The northern part is comparatively cold and wheat, barley, beet, etc. are its principal products. *Lyons* in this part is famous for silk industry.

(vii) *The Mediterranean Coastal region*—It is important for production of vines, oranges, peaches, olives, etc. Moreover, cultivation of wheat is also highly practised.

(viii) *The Alps mountain* in the south-east—Pastoral industry has developed in this region. In the higher elevations and slopes forests are present.

(ix) *The Pyrenees mountain* in the south—It acts as a natural boundary line between France and Spain. Pastoral industry is important in this region.

In spite of her central location in the heart of industrial Europe *FRANCE CONTINUES TO BE ESSENTIALLY AN AGRICULTURAL COUNTRY* and the varied climatic conditions in different parts of the country account for the variety of products. Over 35 per cent. of her total land area is put under agricultural use and nearly 50 per cent. of her population is engaged in *AGRICULTURE*. Her fertile soil and temperate climate greatly helped her agricultural development. Wheat, oat, rye, barley, and maize are the cereal crops extensively grown in the country. Potatoes, sugar-beet, flax and hemp are also grown. Mediterranean fruits like vines, olives, lemons, figs, etc., are important in the south. Silkworm-rearing is greatly practised in the south and she is the largest producer of raw silk in Europe.

FORESTS occupy nearly 20 per cent. of her total land area. Oak, maple, cedar and ash are the principal forest trees. Pine is important on higher elevations. Fishing is practised chiefly

on the Mediterranean coast Tunny pilchard and sardine are the principal catches

France is deficient in coal but her other mineral deposits are considerable Her principal *MINERAL RESOURCES* comprise iron aluminium salt and coal Her iron mining regions are (i) Lorraine (ii) Normandy (iii) St Etienne region and (iv) eastern Pyrenees mountains Lorraine iron mines are most productive In output of iron ores France leads among European producers She is also the world's largest producer of aluminium ores producing over a quarter of the world's total output In production of natural salts too her position is satisfactory Potash salts are largely mined in Alsace and rock salts in Lorraine Her principal coal mining regions are (i) Lille coal field (a continuation of the Belgian field) in the north, and (ii) St Etienne coal field in the central plateau Her paucity of coal is a serious handicap as to her industrialisation In recent years 'white coal' is greatly developed Her principal hydro electric installations are located at the Pyrenees French Alps and Cevennes Little amount of copper and oil is also worked in France

Wine making textile iron and steel perfume and toilet goods are the principal *MANUFACTURING INDUSTRIES* of France Wine making is a speciality with France and she is the leading producer of wine in the world 'Champagne' 'Claret', 'Burgundy' and 'Cognac' are well known varieties of French wines and are so named according to the regions where they are produced Of the textile industries cotton woollen and silk are important Cotton textile is localised in the northern coal fields with imported raw cotton from USA Lille Rouen Mulhouse Nancy and Amiens are the principal seats of this industry Woollen industry is also localised in the northern coal fields Local supplies of raw wool facilities of its importation from Argentina and Australia and cheap coal greatly favoured the localisation of the industry in this region Its principal centres are Roubaix and Reims Silk industry has greatly developed in Lyons The local supplies of coal and raw silk from the Rhone

Saone valley are the chief localising factors of silk industry at Lyons. Linen industry has also grown and the principal centres are Cambrai and Lille.

Iron and steel industry has developed in the northern and St. Etienne coal-fields. Its principal centres are Lille, St. Etienne, Valenciennes, Le Creuzot and Caen. For paucity of her coal resources much of her iron ores are exported to Germany for their workings. Based on local supplies of iron and steel and cheap hydro-electric power automobile industry has developed at Lyons, St. Etienne, Clermont and Paris. French motor cars have a wide sale throughout the world for their elegant designs and high-class finish. Shipbuilding industry is important in Marseilles, and St. Nazaire at the mouth of the Loire.

Perfumeries and luxury and toilet goods are largely manufactured at Paris and Marseilles. Paris is the world's most important fashion centre and its luxury goods have an extensive sale as *articles-de-Paris* in different parts of the globe.

The development of her means of *TRANSPORT* is great. She has over 444,000 miles of roadways and over, 27,000 miles of railways. In development of inland waterways too, her position is very satisfactory. She has over 6,000 miles of waterways. The Seine with the Oise, Marne, Aube, and Yonne; the Rhone with the Saone, the Garonne and the Dordogne, her principal rivers, are all navigable more or less throughout their length. The Seine is navigable by big steamers as high as Paris. The Oise, Marne, Aube and Yonne, the tributaries of the Seine, are all navigable for long distances. The Loire is navigable up to Tours. The Rhone is open to big barges up to Lyons. The Garonne and Dordogne are navigable throughout their whole course. To enhance the value of her river system canals have been constructed. The *Burgundy canal* connects the Seine with the Rhone by means of the Yonne and Saone to help the trade between the Atlantic and Mediterranean ports of France. The *Canal-du-Centre* connects the Loire with the Rhone through her tributary, the Saone. The *Canal-du-Midi* connects the Garonne with the Mediterranean Sea and has recently been extended t

meet with the Rhone. The *Marseilles-Rhone* canal has been constructed to avoid the sandbanks at the mouth of the Rhone. The *Nantes Brest* canal has created an opening for the Loire through the Brest port. Reference has already been made about



France (Waterways)

the *Rhine Rhone* and *Rhine Marne* canals in connection with inland navigation system of Germany. The *Somme*, the *Oise*, the *Sambre* and the *Meuse* are all connected with one another by canals.

TRADE—The principal imports of France are cotton, wool, coal, petroleum, silks, rubber, cocoa, coffee, tea and raw silk.

Her principal exports comprise wine, textile goods, luxury goods, iron ores, bauxite and motor vehicles. Great Britain, Belgium, Germany, the U.S.A., Switzerland and Argentina are the principal countries participating in her foreign trade.

PORTS AND TOWNS—*MARSEILLES* is the chief port of France. It is situated to the east of the Rhone mouth at the head of the Gulf of Lyons. Its importance has been greatly enhanced by the opening of the Suez Canal. It is the natural outlet for the products of the rich Rhone basin. The trade of Marseilles is chiefly with northern Africa, Mediterranean countries and the Far East. Its imports consist chiefly of raw silk, oilseeds, palm oil, hides and skins, iron ores, etc. and its exports comprise silk goods, soaps, scents, and toilet goods, chemicals and motor cars. *BORDEAUX*, situated on the Garonne, is the principal wine-exporting port of France. It is the natural outlet for the basin of Aquitaine. *HAVRE*, situated at the mouth of the Seine, is the principal Atlantic port of France. It is chiefly concerned with French trade with Americas. Its imports comprise cotton, tobacco, coffee, cocoa and wool. Shipbuilding industry is localised here. *DIEPPE*, *BOULOGNE* AND *CALAIS* are the principal Channel ports and are concerned chiefly with passenger and mail traffic with ports on the opposite English coast. *DUNKIRK* is the most northerly port of France and is rapidly growing into importance. It is the natural outlet of the Lille industrial area. *PARIS*, situated on the Seine, is the capital and an important commercial and industrial centre of France. It is the principal fashion centre and the great pleasure-city of Europe. *ROUEN*, situated on the Seine, is an important river port and a great cotton manufacturing centre. *LYONS*, situated on the Rhone, is the principal silk manufacturing centre. Cheap hydro-electric power, nearness to St. Etienne coal-fields and local supply of raw silk from the Rhone-Saone valley are the principal localising factors of the silk industry at Lyons. *LILLE*, situated on the northern coal-fields, is the principal seat of her textile industries. Cotton, linen and woollen are its principal manufactures. *ORLEANS*, situated on the

the Loire, is an important town and is the principal collecting and distributing centre of agricultural products

THE NETHERLANDS (HOLLAND)

The Netherlands (Holland) is a small country inhabited by the Dutch, and is situated on the western edge of the European Continent bordering the North Sea. Its coastline is very broken and the character of its coastline provides a key to the sea faring character of its people. It is the seventh largest country in the ownership of mercantile marine tonnage in the world.

Holland means flat land and its very name explains the nature of its relief. The country is low lying and much of its territory is below sea level. No part of the country is over 300 feet above sea-level. High embankments or dykes have been built to protect the country from drowning by the sea. Much of the territory of Holland has been reclaimed from the sea. The reclaimed lands, called Polders, provide valuable pastoral and agricultural grounds.

The country experiences maritime climate with no great variations of temperature as between summer and winter months. The Westerlies blow over the country throughout the year but the rainfall is moderate due to the total absence of mountainous regions in the country.

The country is essentially *agricultural*. The fertile deltaic soil and favourable climate make the country eminently suitable for agricultural development. Over 30 per cent of the land is used for arable farming. Wheat, barley, oat, rye, sugar beet, flax, potatoes and peas are the principal agricultural crops. The country is well known for *pastoral development* and nearly 50 per cent of the land is used as pasture. The soil is naturally moist, and therefore suited for growing prolific and rich grasses. Its dairy products, viz., cheese, butter, milk (condensed and powdered), chocolate cream and meat (fresh and salted) are world famed for their quality. *Fishing industry* is also important and is practised in the North Sea beds.

The *mining industry* is not so important. Some amount of coal is present and is mined in the Limburg coal-field in the south-east.

Manufacturing industry is not greatly developed. Its principal manufactures are based on the processing of the agricultural and pastoral resources of the country and its colonial possessions. They include breweries, sugar refineries, tobacco factories, etc.

The country is well-provided with well-developed communication system. Its principal rivers, the Rhine, the Maas (Meuse), the Lek and the Waal with a network of interconnecting canals provide nearly 5,000 miles of navigable waterways. Its road-way mileage exceeds 16,000 miles. Its railway development is not so great and its railway mileage is below 3,000 miles.

The principal imports consist of cotton textiles, hardware and machinery, coal, tobacco, tea, coffee, petroleum and rubber. The principal exports are dairy products, sugar, meat and vegetable oils.

PORTS AND TOWNS—*AMSTERDAM*, situated on the west side of the Zuider-Zee, is the largest town and the principal commercial and industrial centre of Holland. It is connected with the North Sea by the North Sea canal. It is chiefly concerned in trade with the Dutch colonial empire. Its chief imports are cocoa, coffee, tea, sugar, spices, rubber, copra, tin and petroleum. It serves as the entrepot trade centre for Germany. Manufacturing industries like sugar refining, brewing, diamond-cutting and polishing are important. *ROTTERDAM*, situated near the mouth of the Lek, is the principal port. It serves as the natural outlet of the Rhine basin. It exports much industrial products of Germany. *THE NEW WATERWAY*, a great ship canal, has been constructed to connect Rotterdam directly with the North Sea. Its principal imports are raw cotton, sugar, tea, tobacco, petroleum and rubber. Its exports comprise dairy products, eggs, live animals, hardware and machinery of Germany. *THE HAGUE* is the capital and an important industrial centre. Pottery industry of this region is very important. *The Hook of Holland and Flushing* are

important packet stations and are chiefly concerned with passenger and mail traffic. *EINDHOVEN* is an important centre of tobacco and textile industry. It is the seat of the great radio and electric lamp factories of Philips. It produces over a fifth of the world's total output of electric lamps and radio instruments.

BELGIUM

Belgium lies south of Holland bordering the North Sea on the west. Physically it can be divided into two broad divisions—(i) lowlands and (ii) highlands. Its northern and western parts constitute the lowlands whereas the south east forms part of the Ardennes mountains and constitutes the highlands.

Belgium for the most part experiences the maritime type of climate. Rainfall is not great and is evenly distributed throughout the year.

Agriculture constitutes an important occupation of the people of the country. Nearly 60 per cent of the land is put to arable use. Wheat, barley, oats, rye, flax, potatoes and sugar beet are the principal agricultural crops. Agriculture is carried on an intensive scale. Forests cover nearly 18 per cent of the land surface and are found chiefly in the south eastern plateau. Sheep rearing is also important in the south eastern plateau regions. Dairy farming for the most part is carried on the reclaimed lands near the coast.

MINERAL WEALTH of Belgium is considerable and mining is one of the principal occupations of the Belgians. Nearly 15 per cent of its occupied population is engaged in mining industry. Coal, iron, zinc, lead and good quality sands are greatly mined. Most of its minerals are found in the mountain districts in the south.

Due to large coal deposits Belgium is particularly noted for its *MANUFACTURING INDUSTRIES*. Its iron and steel industry is highly developed. It is localised chiefly at Liege, Mons and Charleroi. Its abundant coal, local ores and proximity to rich iron fields of Luxemburg and Lorraine greatly helped the development of the industry. Textile industries are also important. Its linen manufactures are highly valued and greatly sold in the

world's markets. The principal centres of linen manufacturing are Ghent, Courtrai and Tournai. Ghent and Courtrai are also the important centres of cotton textile industry. Woollen industry has developed at Verviers at the feet of the Ardennes mountain districts. Belgian glass industry is highly developed and its products command high value in the world's markets.

Means of *communication* have greatly developed. Its road mileage exceeds 6,500 miles. The country is well-provided with a network of inland water communication system. The Schelde, the Meuse and the Lys, its principal rivers, are greatly navigable. The total length of its navigable waterways is about 1,000 miles. Its railway development is also great, linking up all the principal towns and ports.

The principal exports of Belgium are hardware, machinery, textile goods, flax and glass and its chief imports comprise iron ore, raw cotton, flax, wool and food-stuff. Foreign trade is carried on with Great Britain, Germany, France, Holland and U.S.A.

PORTS AND TOWNS—*ANTWERP*, situated at the head of the Schelde estuary, is the chief port of Belgium. It serves as an outlet not only for the industrial products of Belgium but also for north-western industrial Germany. Its principal imports are food-grains, sugar, coffee, raw cotton, wool, hides and skins, iron ores, coal and petroleum. Its chief exports are hardware and machinery, textile goods, glass, flax and dairy products. It is also an important industrial centre. *OSTEND* is another important port on the Atlantic coast and is chiefly concerned with the passenger and mail traffic. *BRUSSELS* is the capital and chief railway centre. It is also an important industrial town. Miscellaneous industries like lace-making, glass, chemicals and metal are important. *LIEGE* is an important industrial town. It is situated in the heart of the coal-mining regions of Belgium. Manufactures of fire-arms, steel rails, machinery and glass are important in this region. *VERVIERS*, situated in the southern Highlands, is the principal centre of woollen industry. *GHENT* is situated on the Lys and is the principal seat of linen and lace industry of Belgium.

LUXEMBURG

The Grand Duchy of Luxemburg situated between Belgium, France and Germany is the smallest independent state in Europe. In September, 1942 it was incorporated in the German Reich by the Germans. In 1944 the Grand Duchy was liberated by the Allied forces and it regained its independence.

The soil of the country is not very fertile. Oats, wheat and potatoes are the principal agricultural crops and nearly 33 per cent of the population is engaged in *agriculture*. The *mineral wealth* is considerable and mining and metallurgical industry is the most important. Of the mineral resources iron ores are most important. They are not only smelted locally but are exported in large quantities to Germany, Belgium and the United Kingdom. Other minerals found in the country are copper and lead but their workings are not very significant. Iron and steel is the principal manufacturing industry of the country.

Food stuffs and textile products are the principal imports of the country, and iron ores and iron and steel are the chief exports.

DENMARK

Denmark occupies the Peninsula of Jutland together with some other adjacent islands. It is situated between the North Sea on the west and the Baltic Sea on the east and thus holds a key position in controlling traffic to the Baltic Sea.

The whole of Denmark is a flat plain and no part of the country rises far above 500 feet. The climate is of cool oceanic type and is alike in many respects to that of Scotland. Rainfall is moderate and is distributed throughout the year.

Although the soil is not very fertile yet *agriculture* occupies an important place in the national economy of the country. Wheat, rye, barley, oats, potatoes and sugar beet are the principal agricultural crops and are raised wherever their cultivation is possible. In the absence of *mining* and *manufacturing industry* its people are forced to adopt intensive cultivation to yield maximum output. *Pastoral industry* is by far the most impor

tant industry of Denmark, and Danish dairy products are world-famed for their quality and purity.

The moist soil and well-distributed moderate rainfall are factors greatly helpful to the prolific and luxuriant growth of grasses. This makes raising of dairy-cattle easy and profitable. The Government also exercises great vigilance and control so that the quality of dairy products which constitute the principal item of exports of the country might not suffer. Poultry farming and fishing are also important.

Denmark is very poorly endowed with *minerals*. Kaolin or China-clay is the only mineral found and has greatly helped to the development of porcelain industry. *Manufacturing industries* have not developed greatly due to paucity of coal and are mainly concerned with the processing of her local produce.

Communication system has greatly developed in recent years. Its total road mileage is nearly 5,000 miles and its railway mileage exceeds 3,000 miles. Its flat plain has greatly helped in the development of its waterways.

The principal exports are milk (condensed and powdered), cheese, cream, butter, eggs, bacon and live-stock, and its imports comprise textiles, hardware, coal, petroleum and chemicals. Almost 50 per cent. of the total trade is with Great Britain and 20 per cent. with Germany.

PORTS AND TOWNS—COPENHAGEN, situated on the island of Zealand, is the capital and the largest town of Denmark. It is also the most important commercial and railway centre. *ESBJERG*, situated on the west coast of Jutland, is an important fishing port and handles much of passenger and mail traffic of Denmark.

CHAPTER XVII

NORTH AMERICA

INTRODUCTION—America is said to be the *New World* and Christopher Columbus is honoured as its discoverer. Broadly, it is divided into *three* main divisions—North, Central and South Americas. Of these three Americas North America is more extensive and developed than the others. It occupies an area of over 8 million sq miles with a population of over 180 millions. It is the third largest continent in the world and is nearly half the area of Asia. The distribution of population in North America is very uneven. Most of the population is found concentrated in the industrial east and its western, northern and southern parts are sparsely populated.

North America is bounded by the Atlantic Ocean on the east and the Pacific Ocean on the west. Its central situation in the North Hemisphere facing industrialised Europe on one hand and agricultural Asia on the other provides a key to its economic development. North America was joined to South America by the Isthmus of Panama. The construction of the Panama canal in 1914 now separates North America from South America.

COASTLINE—The coastline of North America is extremely broken and is 35 000 miles long with quite a good number of bays, peninsulas and ports. In the northern part of this continent many places are nearly 1 000 miles away from the sea while in the South there are places whose distance from the sea does not exceed 150 miles even. In every 300 sq miles of area the length of the coastline is on an average, only one mile. This long coastline of North America can be divided into *three* parts —

(1) *East coast* extends from the Hudson Bay to the Isthmus of Panama, and comprises Labrador Peninsula, Newfoundland Island, St. Lawrence Bay, Nova Scotia Peninsula, Florida Peninsula, Mexico Bay and Yucatan Peninsula.

(2) *West coast* includes the Bay of California, the Peninsula of California, Vancouver and Queen Charlotte islands, Alaska Peninsula, Bering Sea and Bering Straits.

(3) *North coast*—This forms a part of the Tundra region and includes a number of large and small islands such as Greenland.

Baffin, Victoria, etc., the Arctic islands, Hudson Bay, Baffin Bay, Davis Straits, Beaufort Sea, etc.

PHYSICAL FEATURES—Physically, North America can be divided into *four* broad regions :—

(1) *The Western Highlands* which extends from Alaska in the north to Honduras in the south. The Rocky mountain ranges in the eastern extremity, Cascade range in the centre and the Coast range on the west run almost parallel to one another from north to south of this region and these mountain ranges form the main water-parting of both western Canada and western United States of America. Collectively, these mountain ranges are better known as Cordillera, having high plateaus, volcanoes and river basins in different places.

(2) *The Eastern Highlands*, which includes the whole area extending from the plateau of Labrador in the northern extremity to the Appalachian mountains in the southern extremity. The St. Lawrence river is the dividing line of this plateau. The rivers of this region are full of rapids and falls in their courses.

(3) Between these highlands lies the great *Central Plain* covering Canada and the northern part of the United States. It is also known as the Prairies. The central part of this Plain is slightly elevated and this is why the northern part slopes down to the north and the southern part to the south.

(4) *The coastal Lowlands* including the Appalachian slope in the east, the Hudson Bay Lowlands in the north and the Gulf coastal Plain in the south.

CLIMATE—The vast continent of North America occupies a long stretch of land between latitudes 8° N. and 80° N. (Arctic region), so that the northern part lies in the Arctic zone, the central part in the temperate zone and the southern part in the tropics. Naturally, therefore, this continent experiences diverse climatic conditions according to varied physical features, ranging from "Arctic conditions in the extreme north to sub-tropical conditions in the south and desert in the south-west," with variations in particular regions according to local conditions.

The north coast and the adjacent islands being in the Arctic zone, are under the influence of Tundra type of climate and remain snow covered for most part of the year. The mountain ranges in the east and west coasts arrest the moisture laden sea wind and cause heavy rainfall in the coastal areas and consequently this region is under the influence of temperate oceanic type of climate. The central part of the continent however, experiences the bitterly severe cold in winter and warm Atlantic drift from the south-east in summer, in view of the fact that in the absence of any mountain system running east to west the icy cold wind from the Arctic zone can pass over this Plain quite freely from north to south in winter as also the equatorial hot wind from south to north in summer. The northern part of the east coast experiences St Lawrence type of climate, while in the southern part of the west coast, particularly in California Mediterranean climate prevails. The highland regions of the western part and Mexico have temperate desert type of climate on account of poor rainfall. The Plains of Mexico have monsoonal type of climate on account of summer rainfall caused by moisture laden wind from Mexico Bay and the Atlantic Ocean. The warm Gulf stream of Mexico Bay and the the Kurosiwo stream respectively keeps Newfoundland and the the north western coast warm while the south-east coast and its adjacent regions experience Chinese type or warm temperate climate.

COMMUNICATION—The varied relief of North America is also very helpful to the development of its transport system, and great improvement has been effected in its roadways railways and waterways to expedite the pace of its industrial development.

(1) **INTERNAL WATERWAYS**—The mountain ranges of the east and the west are the two main water partings of this continent. The rivers originating from these water partings flow eastwards and westwards respectively and are short, while those running in reverse directions are large.

The rivers of North America can be divided into six classes —

(a) *The river flowing into the Mexico Bay*—The Mississippi with its tributaries, namely the Missouri, the Arkansas, the Red

and the Ohio. The Mississippi-Missouri river system is the longest navigable waterways in the world. The Mississippi is navigable up to St. Paul—a distance of nearly 2,000 miles from its mouth.

(b) *The river flowing into the Atlantic Ocean*—The St. Lawrence. The famous Niagara falls lie on its course, and to avoid it the Welland Canal has been constructed with the result that the St. Lawrence remains navigable practically all the year round except the winter months. Its tributaries—the Mohawk, Delaware, Susquehanna, Potomac and Hudson—are all navigable.

(c) *The rivers flowing into the Pacific Ocean*—These are the Yukon, Fraser, Columbia and Colorado. The courses of these rivers are deep.

(d) *The river flowing into the Arctic Ocean* is the Mackenzie.

(e) *The rivers flowing into the Hudson Bay* are the Albany and the Nelson.

(f) *The rivers flowing into the inland lakes*—The Saskatchewan falls into the Winnipeg Lake and the Slave into the Slave Lake. These are inland rivers.

All these rivers are navigable for a considerable distance and help the development of internal communication. The rivers flowing from the Appalachians are, however, short and have falls and rapids in their courses. But many of them are of considerable importance, since they flow through the eastern part of the U.S.A. which is the wealthiest and most prosperous area in the continent. Moreover, the value of these rivers is all the more greater as sources of water-power which accounts for the rapid development of the manufacturing towns such as Washington, Richmond, Montgomery, Columbia, etc.

North America is the greatest lake-area in the world. Lake Superior covering an area of 32,000 sq. miles is the second largest sweet-water lake in the world, and it lies in the Plains of this continent, the other large Lakes being Michigan, Huron, Erie, Ontario, Winnipeg, Manitoba, etc. From these lakes flow most of the great rivers of the northern part of the continent. Of them the St. Lawrence is the most important river from the commercial point of view. It has connected lakes Michigan, Huron,

Superior, Erie and Ontario with the Atlantic Ocean and has thus created an excellent water route for easy transportation of the agricultural and mineral products of central Canada and the U S A to the coastal industrial regions

The total mileage of the waterways of the U S A alone is 20,000 Before the construction of the railways the Mississippi with its tributaries, was the only transportation agent of the agricultural and industrial regions of the U S A and even now its importance in this respect has not lessened in the least

(2) **ROADWAYS**—The total road mileages of the U S A and Canada are 35 00 000 and 3,90,000 respectively These roadways being mostly suitable for motor vehicular traffic, have facilitated transport over short distance

(3) **RAILWAYS**—The continent has a thorough network of railway system *The Canadian Pacific Railways* have linked up the provinces in the extreme east and west *The Canadian National Railways*, the *Hudson Bay Railways* and the *Yukon Railways* have spread almost all over Canada and have thus connected the industrial areas with the agricultural ones Like wise *the Northern Pacific*, *the Southern Pacific*, *the Union Pacific* and numerous other small railways account for the well-developed communication system in the U S A In Central America and Mexico the communication system has been affected by the natural barriers which have hindered the proper expansion of railways in these two regions

The **AIRWAYS** of this continent too is fully developed

North America experiences varied climatic conditions which favour cultivation of varieties of *agricultural products* Wheat, barley, maize, oats sugar beet sugar cane, tobacco, cotton, rice and Mediterranean fruits are largely grown North America produces 18.5 per cent of the total food stuffs production of the world. In production of mineral, pastoral lumbering and fishing products its position is very satisfactory In production of minerals like coal, petroleum, iron, copper, silver, lead, zinc, etc it is the leading producer in the world In all other fields of economic activities it holds a significant world position

The continent of North America is divided into *three* main political divisions — (1) The British Dominion of Canada and Newfoundland; (2) The United States of America; and (3) Mexico.

CANADA

The Dominion of Canada occupies the whole north of the continent of North America except the Danish island of Greenland and the United States territory of Alaska. Its total area is 3,845,774 sq. miles and its population is nearly 14 million. The eastern and south-eastern parts are more densely populated than the mountainous western and colder northern regions.

The Dominion of Canada is divided into *twelve* federal divisions of which ten are Governors' provinces with their local governments and two are territories governed by commissioners assisted by councils. The provinces are (i) Prince Edward island (ii) Nova Scotia, (iii) New Brunswick, (iv) Quebec, (v) Ontario (vi) Manitoba, (vii) British Columbia, (viii) Alberta, and (ix) Saskatchewan and (x) Newfoundland.* The Commissioner territories are (i) the Yukon Territory and (ii) the North-West Territories.

Canada can be broadly divided into *four* broad divisions (i) the *Rocky Mountain region in the west*, (ii) the *Central Plain*, (iii) the *Laurentian Plateau and Lowlands*, and (iv) the *Maritime provinces of Nova Scotia, Prince Edward island and New Brunswick*. The Central Plain includes mainly three "Prairie Provinces" of Manitoba, Saskatchewan and Alberta.

Canada chiefly lies in the westerly wind-belt. But the Rocky Mountains on the west shut out the sea-winds in exercising a control over the climate of the region lying east of the Rockies. The climate, for the most part, is continental, but the vast expanse of the country together with its varied relief accounts for considerable local variations.

*A separate treatment of the province of Newfoundland and Labrador which constitutes a part of the Dominion of Canada has been added in this chapter.

Canada is mainly an *AGRICULTURAL* country even now and agricultural products constitute nearly half the total exports of the country. Over 30 per cent of its population is engaged in agriculture. Wheat, oats, barley, rye, potatoes, sugar beet, flax and maize are the principal agricultural crops. Canada is the world's largest exporter of wheat but in its production it is the fourth largest in the world. Wheat is its most important crop. Saskatchewan, Manitoba and Alberta—the Prairie Provinces—are the order named the chief wheat producing areas. Winnipeg is the chief collecting and distributing centre and is said to be a granary of the British Empire. The principal consumers of Canadian wheat are the United Kingdom, the U.S.A., Africa and the Far Eastern countries and it is exported from Port Arthur, Fort William, Winnipeg, Montreal, etc. The second cereal point of importance and acreage sown is oat. It is the fourth largest producer of oat in the world. Saskatchewan, Alberta, Quebec, Manitoba and Ontario are the principal oat producing provinces. Barley is grown along with wheat in poorer soil in the wheat belt. Maize is grown in southern Ontario. Although rye is cultivated in various places, the important producing regions are Saskatchewan, Manitoba and Alberta. Flax is grown in Saskatchewan, tobacco in the Lake Peninsula of Ontario, and sugar beet in Alberta and Ontario.

One of the most important crops of Canada is fruit which constitutes one of the principal items of export. The principal fruit producing areas are Ontario, British Columbia, Quebec and Nova Scotia. Fruits like apples, pears, peaches, cherries, grapes etc. are grown in Ontario and British Columbia, while apples are chiefly grown in Nova Scotia on account of its more severe climate.

PASTORAL INDUSTRY is also important and is carried along with arable farming. In dairying industry Ontario and Quebec are important and in stock raising Saskatchewan and Alberta lead over other provinces. Ontario and Quebec rear about 10 per cent of Canada's sheep. Canada's coniferous forests are a natural abode of many fur bearing animals, and trapping of

these animals for yield of fur is another important industry practised in the coniferous forest regions in the north.

FORESTS occupy an important place in the national economy of the country. Nearly one-third of the land area of Canada is covered with forests. The trees are mostly soft-wooded conifers. The vast coniferous forest of Canada is situated immediately south of the Tundra and pine, fir, hemlock, spruce, Douglas fir, yellow-pine and larch are its principal trees. The northern part of the Atlantic coast has coniferous forest, while in the southern part deciduous forest exists with oak, elm, maple, poplar, etc. as the characteristic trees. So vast and rich is the coniferous forest of Canada that it is said to be the Empire's storehouse of 'Soft-wood supplies'. It is the largest exporter and second largest producer of soft-woods. The principal producing regions are British Columbia, Ontario, Quebec and New Brunswick. British Columbia alone produces nearly 50 per cent. of the Canadian output. Canada's forest resources have led to development of its lumbering and allied industries.

FISHING INDUSTRY is also important and provides employment to a large section of the people. Canada's fisheries are the third most important in the world. Its fishing grounds are distributed over (i) the North Atlantic Fisheries, (ii) the North Pacific Fisheries and (iii) the Lake Fisheries. In the Atlantic coast the principal catch is cod. Next in importance are haddock, halibut, lobster, herring, salmon, etc.

Nearly half the total catch of the Canadian fisheries is obtained in the Pacific coast where salmon constitutes the principal fish caught, halibut and herring being next in importance.

In the lake areas herring, sardine, pilchard, perch, trout, white fish, etc. are caught in abundance.

MINERAL WEALTH of Canada is considerable, but the mineral resources have not been fully developed. Of the minerals gold, silver, platinum, nickel, zinc, lead and asbestos are important. Canada is the second largest producer of gold in the world. The Porcupine district of Ontario is the biggest producing region producing nearly 50 per cent. of the Canadian output. Quebec

British Columbia, the Yukon Territory, Manitoba and Saskatchewan are the other important gold producing regions. Canada is the world's third largest producer of silver. Silver is produced



Canada (Minerals)

chiefly in North Ontario and British Columbia. It is also the world's largest producer of platinum, the USSR being the close second.

Canada produces nearly 90 per cent of the total output of nickel in the world. The nickel-cobalt mines at the Sudbury district of Ontario provides the bulk of the world's supply of nickel. Cobalt (an important metal) is also produced from these mines. In production of asbestos it is easily the world's leader, producing over 80 per cent of the world's total output. South-western Quebec produces the bulk of the Canadian output. The same province is also a leading source of the world's mica. Canada is the third largest producer of zinc and copper and the fourth largest producer of lead. Copper is chiefly mined in British Columbia, Ontario and Quebec. British Columbia producing over one half of the Canadian output. Lead and zinc are the other important minerals found in British Columbia and Ontario.

In supply of **POWER RESOURCES** Canada's position is satisfactory. Its largest known coal mines lie at the two extremes

of the Dominion, in Nova Scotia on the east and the Vancouver island on the west. Nearly half of the total output is raised in Nova Scotia and Cape Breton island. Other important coal mining regions are British Columbia, Alberta, New Brunswick and Saskatchewan. Recently large deposits of lignite and bituminous coal have been found out in Ontario. It is interesting to note that the most populous and industrially developed province of Ontario lacks sadly in coal and has to depend on imports from the United States, whereas the western provinces of the United States get supplies of coal from the western fields of Canada.

Petroleum is also found but its production is not very great. The principal oil-producing provinces are Alberta, Ontario and New Brunswick. Natural gas is also found in the petroleum mining regions. Much of the mineral wealth of Canada remains unexploited and it is believed that when its mineral resources will be exploited fully, it will rank as the world's foremost producer of minerals.

Canada ranks next to U.S.A., in actual development of hydro-electric power. Its hydro-electric installations are chiefly concentrated in Eastern districts. The more important hydro-electric developments are on (i) the Niagara Falls between Lake Erie and Lake Ontario, (ii) the Saguenay and the St. Maurice rivers in Quebec, and (iii) the Sault Ste. Marie Falls between Lake Superior and Lake Huron.

It will perhaps not be out of place to discuss here briefly *WHY IN SPITE OF RICH NATURAL RESOURCES CANADA REMAINED SO LONG A PURELY AGRICULTURAL COUNTRY*. The first settlers in Canada from the industrial countries of Europe were naturally prone to exchange the country's natural resources for their essential requirements in the form of manufactured products from their homeland. In proportion to size Canada is thinly populated. The fertility of the soil and the abundant availability of land, therefore, attracted the people more to agriculture than to manufacturing industries. Major portion of the country's capital was invested in agriculture with

the result that Canada lacked in skilled labour and technicians. This explains why adequate attention could not be given to the development of industries. The low purchasing capacity of the people, transport difficulties, and the close proximity of the thickly populated and industrialised U.S.A. were the main factors forming a strong barrier to the industrial prosperity of Canada. In spite of all these handicaps, Canada has made remarkable progress in various branches of industry ever since the outbreak of the Second World War. This very rapid development is due to the discovery and exploitation of new minerals under state patronage, expansion of railways and intensive use of hydro-electric power, and Canada now ranks second in the British Commonwealth and sixth in the world so far as manufacturing industries are concerned.

Canada's MANUFACTURING INDUSTRIES are principally confined to the processing of its own resources. In recent years lumbering, wood pulp and paper manufacturing industries have come to be developed in the towns in the east coast with the aid of the coniferous forest wood of the east and the cheap hydro-electric power produced from the rivers originating from the snow-covered Labrador valley and flowing in Southward direction. Canada is now the greatest manufacturer of newsprint in the world. Due to the existence of iron and coal in close proximity to each other various industries such as, iron and steel, rubber, locomotive, automobile, agricultural implements, cotton and woollen textiles, leather, sugar, chemical, etc., have grown up in the eastern districts of Canada. Montreal, Toronto, Kingston, London, Quebec, Fredrickton, etc. are the principal seats of these industries. The development of its aluminium industry is based primarily on imported ores. Canada is now one of the leading manufacturing countries of the western Hemisphere. Flour milling, fish canning, meat packing, dairying are its other industries.

TRADE—Wheat, flour, newsprints, automobile and automobile parts, meat, wood pulp, fish, dairy products, furs, metals and metallic ores constitute the principal items of export. Its principal imports are machinery, coal, petroleum, textiles, aluminium ores,

rubber, cotton, tea, tobacco and oil-seeds. Its foreign trade is carried on mainly with the U.S.A. and Great Britain.

Undivided India usually imported very little from Canada but due to acute shortage of food-stuffs Indian Union has been importing considerable quantities of Canadian wheat since 1943-44. Of the minerals she imports nickel, asbestos, and small quantities of gold, silver, etc. Since the outbreak of the Second World War India's import of Canadian locomotives, metal wares, food-stuffs, wood-pulp and paper has been much larger than it was in pre-war days.

Trade relation between India and Canada has not grown up very satisfactorily due to very long distance and also because both are agricultural countries. Up to 1941 the balance of trade was in favour of India, but since then the situation has been reversed due to acute shortage of food grains in India.

COMMUNICATION—Canada is not so well-provided with navigable waterways. Its rivers are mostly closed by ice during the winter months and as such the communication facilities which they provide are seasonal in character. The Yukon, the Mackenzie, the Saskatchewan, the Nelson and the Albany are navigable for short periods during the summer months only. The St. Lawrence and the great lakes, however, provide over 2,000 miles of navigable waterways open throughout the year to Canada. Altogether it has over 2,700 miles of inland waterways.

Owing to the closing of its waterways in winter, its railways are vital to the development of the country and hence it is said that "*CANADA IS THE MAKING OF ITS RAILWAYS.*" In a country of such vast expanse railway construction must precede and not follow settlement. Altogether there is over 58,000 miles of railways, a part of which is run by electricity. It has *two* principal trans-continental railways—(i) the Canadian Pacific Railway and (ii) the Canadian National Railway. The Canadian Pacific railway (3,367 miles) connects the Atlantic Sea-board with the Pacific Sea-board of Canada. It starts from St. John on the Atlantic coast, goes to Montreal, Ottawa, Sudbury, Port Arthur, Winnipeg, Brandon, Regina and Medicine Hat and thereafter

crossing the Rocky mountains by Kicking Horse pass terminates at Vancouver on the Pacific coast. The Canadian National Railway begins from Halifax goes to Quebec, Winnipeg, Saskatoon and Edmonton and crossing the Rocky mountains by Yellowhead pass reaches Prince Rupert, the most northerly port of Canada. The railway transport system is largely under the Government direction.

PORTS AND TOWNS—*MONTREAL* is the principal port and the largest town of Canada. It is situated on the St. Lawrence and is accessible to the big ocean liners due to the opening of its mouth. It is the natural outlet for the agricultural and mineral belt of Canada. The only handicap from which it suffers is the closing of the port by ice during the winter months. Its principal exports are wheat, maize, nickel, silver and copper. *HALIFAX* on the east coast of Nova Scotia, is an all the year round port of Canada. It is a safe and commodious natural harbour and it exports principally the mineral resources of Nova Scotia. Due to the freedom from ice it handles most of the winter trade of Montreal. It is well connected by railway system with the interior. *VANCOUVER*, situated in British Columbia, is the most important Pacific coast port of Canada. It is the western terminus of the Canadian Pacific Railway and is also the natural outlet for the products of the western prairie regions. It acts as a gateway for Canada's trade with the Far East and Australia. Its principal exports are wheat, timber, coal, gold, etc. Unlike Montreal it is open all the year round. *ST. JOHN*, situated on the Bay of Fundy, is a natural port and is free from ice all the year round. It is the largest town and chief port of New Brunswick. *OTTAWA*, situated on a river of the same name in Ontario, is the capital of Canada and the seat of the Dominion Government. It is the chief lumber centre of Canada. *TORONTO*, situated on the west side of lake Ontario, is the capital of Ontario province. It is an important commercial centre and lake port. It is also a railway and manufacturing centre. *PORT WILLIAM* and *PORT ARTHUR*, situated on the western end of Lake Superior, are important grain ports.

and facilities of importing iron ores from the neighbouring regions helped in the development of the industry. *DETROIT*, situated in Michigan, is an important lake port. It is the centre of Ford Motor Company and has become the world's greatest producer of motor cars. *BALTIMORE* is an important port on the Atlantic coast serving the industrial regions of the New England States. *WASHINGTON* is the capital of the United States. It is famous for its fine buildings and serves as a copy-book for students of modern architectural designs. *BIRMINGHAM* in Alabama is a noted centre of iron and steel industry. It is a close second to Pittsburg in output of iron and steel.

MEXICO

Mexico lies south of the United States of America. It occupies an area of 760,375 sq. miles with an estimated population of over 25 millions. The country is highly mountainous with coastal lowlands both in the east and in the west. The coastal lowland in the east is wider and more developed than that in the west.

Mexico lies mainly between latitudes 14° and 32° North. The Tropic of Cancer almost bisects the country into two equal halves, the northern part lying in the temperate zone and the southern part in the torrid zone. This accounts for varieties of climate. The temperature is fairly high and rainfall varies from south to north. The southern part receives greater rainfall and is more developed in agriculture.

AGRICULTURE is the principal occupation of the people and provides employment to over 70 per cent. of the total employed population. Maize, sugar-cane, sisal-hemp, tobacco, coffee, rice, cotton, wheat, bananas and tomatoes are extensively grown. Over 55 per cent. of the arable land is devoted to cultivation of maize and it constitutes the chief cereal crop of Mexico. Mexico is the world's leading producer of sisal-hemp producing over 50 per cent. of the world's total. LUMBERING INDUSTRY is important and pine, spruce, cedar, mahogany and rosewood are its principal forest trees.

MINING constitutes an important industry of the country. Silver, lead, zinc, petroleum, coal, mercury and graphites are its

principal minerals. Its mineral wealth is distributed throughout the country. The chief mining districts are situated in the heart of Mexico. Silver constitutes the chief mineral mined. It produces over 50 per cent of the world's total output. Durango, Chihuahua and Hidalgo are the principal oil mining regions. The country is an important producer of petroleum and its petroleum mines are in the Gulf coastal zone near Tampico.

MANUFACTURING INDUSTRY has not as yet made great progress. The poverty of the bulk of the people and their low standard of living, the comparatively undeveloped state of communication system, the paucity of skilled labour and the frequently disturbed political conditions of the country account for its industrial weakness. Tobacco factories and cotton textile and timber mills are its principal industrial establishments.

Means of communication of Mexico are not well developed. Its mountainous character affects the development. Altogether there are 43,614 miles of roadways and about 17,000 miles of railways. Its rivers are short, swift running and full of rapids. They are useless as means of transport.

The principal exports are silver, petroleum, copper, sisal, hemp, cotton and coffee and its imports consist mainly of machinery and textile goods. Its foreign trade is mainly with the U.S.A.

Tampico and Vera Cruz, situated on the Gulf coast, are the two most important ports. Mexico is the capital and the chief commercial and industrial centre.

CENTRAL AMERICA

Central America consists of the six small republics of Guatemala, Salvador, Honduras, Nicaragua, Costa Rica and Panama, and British Honduras. **THE DIFFICULTIES IN THE MATTER OF COMMERCIAL AND ECONOMIC DEVELOPMENT** of Central America are many, some of which are of the following nature —

(1) **POSITION**—Central America is situated in the tropical climatic region and consequently the climate of the country is not very conducive to the industrial development of the country.

(2) **RELIEF**—The mountainous nature of Central America makes the country definitely unsuitable for manufacturing as

well as large scale agricultural industries. Of course, agriculture is the chief industry in Central America, but there is very little scope of any great improvement in agricultural industries, since not more than 5% of the surface of the country is amenable to cultivation for agricultural purposes.

(3) *ABSENCE OF TRANSPORTATION FACILITIES*—The mountainous nature of Central America makes it apparent that the country cannot have any well-developed transportation systems which are so very vital for the trade and commerce of a country.

(4) *POLITICAL UNSTABILITY*—Central America which has total area less than a third of that of Mexico is divided into as many as six independent republics. The multiplicity of governments speaks for absence of a centralised policy regarding the industrial development of the country.

(5) *ABSENCE OF MINERAL RESOURCES*—As to mineral resources, it is well known that she lacks in rich deposits and as such cannot develop mineral extracting industries within her border.

· *AGRICULTURE* is the mainstay of the people. Coffee, cocoa, rubber, sugar-cane, tobacco, maize, and bananas are the principal agricultural crops. Tropical *FORESTS* are highly important and yield valuable timber. *MINERALS* like gold, silver, copper and lead are present but their exploitation has not yet begun.

The principal exports are timber, coffee, cocoa, gold, silver, tobacco, rubber, etc. and the imports comprise chiefly manufactured goods, coal, petroleum, etc.

WEST INDIES

The West Indies comprise the group of islands lying south of the United States of America. Cuba, Hispaniola, Jamaica and Puerto Rico, the four large islands in the north, are called the *Greater Antilles*, whilst the smaller islands are collectively known as the *Lesser Antilles*. The Bahamas which lie south-east of Florida do not form part of Greater and Lesser Antilles.

The majority of the islands comprising the West Indies are political dependencies of either European powers (Great Britain, France, and the Netherlands) or the United States. Cuba and

Hispaniola are independent. Puerto Rico and some other small islands belong to the United States, whereas Jamaica, Trinidad the Bahamas and some other islands belong to Great Britain. Other less important islands belong to other European powers. The greater part of the islands is mountainous. Although the temperature throughout the year is high, the climate of the islands is on the whole very pleasant due to the moderating influence of the cool sea breeze. The forests of the islands are of the dense tropical type. Agriculture is of primary importance in the islands the agricultural crops being sugar cane, tropical fruits tobacco coffee and cocoa.

CUBA—Cuba is the largest West Indian Island. It covers an area of 44,206 sq miles with a population of 4,778,583. The eastern part of the island is mountainous, while in the rest the surface is more or less plain of gently sloping nature. *Agriculture* is the main occupation of the people. Sugar cane, tobacco, rice, lemp fruits and coffee are the principal agricultural crops. It is the second largest producer of sugar in the world, and thus alone constitutes 70% of the total exports of the island. *Minerals* like iron, copper and manganese are known to be present. Cuba has large areas covered with equatorial *forests*. Mahogany, ebony, cedar etc. are the principal trees found in these forests. *Havana* is the capital and the principal port. It is well known for cigars. Timber and timber products are also important.

PUERTO RICO—This island covers an area of 3,423 sq miles with a population of 2.2 millions. Sugar, tobacco, coffee and fruits are the principal products of the island. Cattle rearing is also important. *Minerals* like gold, silver, copper, tin, mercury, etc. are said to be present.

HISPANIOLA—Hispaniola is politically divided into Haiti and Santo Domingo. The Western part of the island which constitutes about one third of the whole is known as the Republic of Haiti; the rest comprises Santo Domingo. *Agriculture* is the main occupation of the people. Sugar, coffee, cocoa and tobacco are important agricultural products grown. *Minerals* are known to exist but little worked. *Forests* are also important.

JAMAICA—It covers an area of 4,674 sq miles with a population of 1.2 millions. It is the most important British West Indian possession. Fruits (bananas and oranges), sugar, cocoa

nuts, coffee and cocoa are the main products and exports. Timber resources are also important. *Trinidad* and *Tobago*, the two other British West Indian islands, are large producers of asphalt, cocoa, petroleum and sugar. In *Tobago* island *lumbering industry* has made great progress due to abundance of forests.

The Bahamas, Barbados, and other small islands forming the other British possessions in the West Indies produce cocoa, sugar, cocoanuts, tobacco, fruits, etc.

SOUTH AMERICA

South America which occupies the southern part of the land mass of the *New World* is separated from North America by the Isthmus of Panama. It occupies an area of about 7 million sq. miles and has a total population exceeding 75 millions.

The continent stretches from latitude 10° N to 55° S roughly. The Tropic of Capricorn divides the country into *two* broad zones—the temperate zone and the tropical zone. Due to the wedged-shaped size of the country nearly 75 per cent. of its area lies in the tropical zone. The temperate zone lies south of the tropical zone beyond latitude 30° S. Due to the vast distances (north-south) of South America, there are considerable variations in climate and vegetations of its different regions. Except in the mountainous regions and the areas south of latitude 40° S high temperature prevails throughout the year, but in the central and southern parts of the west coast the temperature is somewhat moderate due to the influence of the cold current. There is a marked variation in rainfall in the different regions of the country due to its vast size and varied relief. In the Amazon and Orinoco basins in the north there are equatorial forests but in the southern Chile coniferous forests are important.

On the basis of its relief South America is divided into *three* broad physical regions—(i) *The Western Mountains*. The Andes provides a long chain of mountains running close to the west coast. (ii) *The Central Plains* which include (a) The Orinoco basin, (b) The Amazon basin, and (c) the basins of the Parana-Paraguay and Uruguay river systems. (iii) *The Eastern Highlands* comprising (a) The Brazilian Highlands and (b) the Guiana Highlands.

South America is industrially very backward *THE FACTORS RESPONSIBLE FOR ITS INDUSTRIAL BACKWARDNESS ARE —*

(1) *BAD CLIMATE*—As the greater part of South America lies within the tropics the temperature is high at all seasons which necessarily means an atmosphere in which industrial growth is next to impossible

(2) *IN ADEQUATE COMMUNICATION FACILITIES*—In South America railways have not developed to such an extent as are desirable for the development of the country Besides the waterways afforded by the Orinoco, the Amazon and the Parana Paraguay rivers are too meagre for a vast country like South America

(3) *PAUCITY OF LABOUR*—South America suffers a great handicap due to absence of adequate labour force The native labour is very inefficient and unenterprising

(4) *ABSENCE OF POWER RESOURCES*—South America suffers a great handicap due to absence of power resources Even if there are to be found coal resources in particular states they are mostly inaccessible and as such very little worked

(5) *GOVERNMENT INSTABILITY*—The weakness of the governments of the country and their apathy towards the industrial growth greatly account for the present pitiable plight

(6) *REGULAR COASTLINE*—The coastline of South America is unbroken and regular It hinders the development of ports and thus affects its commercial development

RIVERS—Although South America has several long rivers, such as the Orinoco, the Amazon and its tributaries, the Parana and the Paraguay the importance of these rivers as arteries of commerce is not very great The Orinoco is 1,200 miles long and is navigable upto the feet of the Guiana Highlands Its main tributaries are navigable up to the feet of the Andes The Amazon, one of the longest rivers of the world, is navigable for 2,600 miles and with its tributaries it provides over 27,000 miles of magnificent navigable waterways The Parana and the Paraguay, the two other rivers of South America, are also navigable In comparison to the vast size of the continent this waterway provided by its great river system is not adequate for the proper development of the continent Furthermore, except in Argentina and Chile, the

continent is generally very backward in railway construction, inasmuch as the railway lines only connect the ports with one another and with the inland productive areas. The handicaps in the rail and water transportation is, however, compensated to some extent by the air services linking up the major ports and towns of the Republics.



South America (Agricultural)

Rio-de-Janeiro, Montevideo, Buenos Aires and Valparaiso are the principal ports of South America and these have been dealt with in Chapter XII

Politically South America is divided into ten independent Republics of (i) Colombia (ii) Venezuela, (iii) Brazil, (iv) Paraguay (v) Uruguay (vi) Argentina, (vii) Chile, (viii) Bolivia (ix) Peru and (x) Ecuador, and (a) British, (b) French and (c) Dutch Guianas

COLOMBIA—Colombia is situated on the north west corner of South America bordering the Atlantic Ocean on the east and the Pacific Ocean on the west. It occupies an estimated area of 439 617 sq miles with a population of over 11 millions. It has an extensive coastline (2 007 miles). The country is very mountainous. The climate is hot and wet in the lowlands, sub-tropical in the Orinoco and Amazon basins and temperate in the mountainous regions.

Agriculture is important. Coffee, tobacco, rice, sugar-cane, banana, cocoa and rubber are the principal agricultural crops. Cotton and wheat are also grown. It occupies the second largest position in the production of coffee in the world. Much of the country is covered with tropical and equatorial forests. *Mineral wealth* is considerable. Gold, silver, petroleum, platinum, copper, lead, mercury and manganese are present. Coal and iron are also present. But the workings of mineral and forest resources of Colombia are not very great due to lack of transport facilities. The development of *manufacturing industries* is almost nil. A few tobacco factories and textile mills are the only important industrial establishments.

Due to the mountainous character of the country communication system both by rail and by rivers is very poorly developed. The total roadways open to automobile traffic is only 11,178 miles. The inland river communication is conducted by the river Magdalena and the tributaries of the Orinoco. Railway development is inadequate. The total railway mileage is 1,914 miles.

Its principal exports are petroleum, platinum, gold, coffee, tobacco, banana and rubber, and its principal imports comprise hardware, textiles, chemicals and food-stuffs. Foreign trade is chiefly carried on with the U.S.A., Great Britain and Canada.

Bogota is the capital and largest town, and *Barranquilla* is the principal port of Colombia.

VENEZUELA—The Republic of Venezuela lies east of Colombia in the north of the continent of South America. It comprises mainly the basin of the Orinoco. It has an area of 352,143 sq. miles and an approximate total population of 4.9 millions. The climate is tropical and sub-tropical and it varies according to altitude.

Venezuela is primarily an *agricultural* country. Nearly 20 per cent. of the population is engaged in agriculture. Cocoa, coffee, rubber, sugar-cane, tobacco and maize are the principal agricultural crops. *Mineral wealth* is considerable. Of the minerals petroleum is by far the most important. It is the world's second largest producer of petroleum. Its chief oil regions are the Lake Maracaibo basin. Coal, iron, salt, tin, asbestos and mica are also present. Equatorial forests are important and yield valuable furniture-wood. *Pastoral industry* is important in the Llanos of the Orinoco basin and in the Cordilleran region. *Manufacturing industries* are poorly developed owing to inadequate transport system in as much as the country has not more than 5,909 miles of roadways and has only 700 miles of railways.

The principal exports are petroleum, cocoa, coffee and timber and the imports comprise hardware, textiles, chemicals, etc.

Caracas is the capital of Venezuela and *La Guaira* is its chief port.

BRAZIL—Brazil is the largest State of South America and is about twice the size of undivided India. It has an area of 3,275,510 sq. miles and a total population of 52 millions. The greater part of Brazil is low, flat plain lying between Guiana Highlands on the north and Brazilian Highlands on the south and comprise mainly the basins of the Amazon river system.

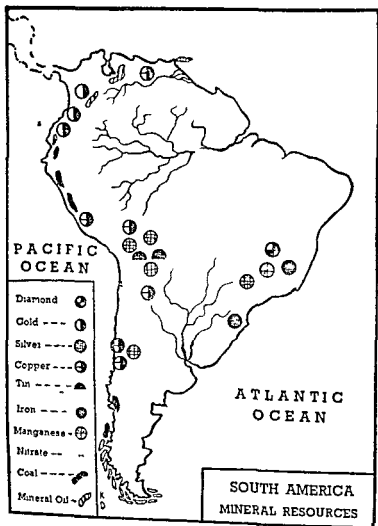
Brazil stretches from latitude 5° N to 35° S and as such experiences varieties of climate. The climate is equatorial on the Amazon basin, mostly tropical on the Guiana Highlands and Northern Brazilian Highlands, and temperate on the borders of Uruguay.

Like China, Brazil is rightly called a *sleeping giant* owing to the fact that its vast natural resources provide great possibilities of economic development which is greatly hindered by poorly-

developed communication system, inadequate supply of capital and labour and unfavourable climate of the northern regions

Agriculture is the mainstay of the people of the country

Coffee co coa tobacco rubber cotton sugar cane maize, rice,



South America (Mineral)

oilseeds, oranges and bananas are the principal agricultural products. Brazil is the world's largest producer of coffee and castor-seeds. It produces over 50 per cent. of the world's total output of coffee. Coffee-growing is mainly confined to Sao Paulo region due to volcanic soil rich in iron, the other area being the coastal margins of the north-east. It is the world's second largest producer of cocoa, the fourth largest producer of sugar and tobacco and the fifth largest producer of maize. *Pastoral industry* is also important and is mostly practised in the south-west of the southern temperate regions and in the Brazilian Highland regions. The live-stock of the country consists mainly of pigs, sheep, horses, cattle, of which cattle and pig-rearing are the most important. Its *mineral resources* are also important but little exploited as yet. Brazil is said to have the world's largest reserve of iron ores. The principal iron mines are found in Minas Gerais and Itabira. Other principal minerals are mica, graphite, monazite (from which thorium is obtained), manganese, chrome ore, coal, gold and diamond. In the production of manganese Brazil ranks fourth in the world, but almost the entire output is exported, very little amount being consumed locally. *Manufacturing industries* have not yet developed greatly. Cotton and woollen textile mills are the only important industrial establishments worthy of mention. Other industries such as sugar-refineries, breweries, fruit-canning are also developing rapidly.

The rivers of Brazil—the longest of which is the Amazon—having many falls in many places, the potentialities of the development of hydro-electric power are indeed very great, although they are unsuitable for water transport.

Communication system is poorly developed. Its total area exceeds that of the United States of America, but its railway mileage does not exceed even 24,000 miles. Roadways and waterways are also meagre.

Coffee, cotton, cocoa, rubber, castor-seeds, diamonds, manganese, hides and skins are its principal exports. Coffee provides more than 65 per cent. of the total exports of the country, and as the economic prosperity of the country largely depends on this single cash crop, to avoid any future disaster the government is encouraging increased production and export

of other crops such as tobacco cotton cocoa, sugar etc. The principal imports of the country are hardware machinery chemicals and coal.

PARAGUAY—The Republic of Paraguay is bounded by Argentina Brazil and Bolivia. It has no access to the sea. It occupies a flat plain drained by the Parana and Paraguay river system and is said to be 'The Mesopotamia of South America'. The Republic of Paraguay has an area of 157 039 sq miles and a total population of 1.4 million. Its climate is one of extreme cold in winter and hot in summer. Its soil is fertile and is suitable for arable farming. Maize rice sugar-cane cotton, tobacco and fruits are the principal agricultural products. *Pastoral industry* is also important and yields much quantity of meat meat-extracts wool hides and skins. *Mineral wealth* is known to exist but as yet very little worked. Its principal minerals are iron manganese and copper. Industrial development is meagre due to undeveloped nature of communication system.

As the country has no access to the sea its overseas trade is carried on through Argentina and Uruguay. Hides and skins, canned and salted meat cotton Yerba mate (Paraguay tea) and tobacco are its principal exports and manufactured goods comprise its main imports.

URUGUAY—The Republic of Uruguay is the smallest of South American States and lies on the south-east of Brazil. It has an area of 72 172 sq miles and a total population of 2.3 millions. Formerly it formed a province of Brazil but now it is an independent republic. The country is a flat plain and is drained by the Uruguay river. The climate is of warm temperate type. Uruguay is mainly a *pastoral country*. Over 60 per cent of the total area is devoted to pastoral industries alone and 20 per cent of the area is devoted to pastoral-cum-agricultural industry. Its pastoral industry provides over 90 per cent of the country's exports. *Agriculture* is second in importance to pastoral industry. Nearly 7 per cent of the total area is devoted to agriculture. Wheat maize linseed and barley constitute the principal agricultural crops. *Mineral wealth* is also present in the north. Gold silver copper and lead are the principal minerals found in the country. Iron manganese, lignite gypsum cobalt marble and

mica are also present. Of the minerals, however, gold and, to a certain extent, coal are mined.

Uruguay is well provided with rail, river and air communication.

Wool, meat, hides, wheat, maize, oranges and marbles are its principal items of export, while petroleum, fuel oil, coal, cotton textiles, sugar, iron and steel, and machinery constitute its principal imports. The foreign trade of the country is mainly carried on with Germany, Great Britain, the U.S.A. and Argentina.

ARGENTINA—The Republic of Argentina occupies the south-eastern part of South America. It is second to Brazil in area and is the most progressive state of South America. It has an area of 1,079,965 sq. miles and a total population of 18 millions. It stretches in a long strip from latitude 22° S to 55° S roughly. The western part of the country is mountainous with a plateau in the south and the rest is a plain. Climate, on the whole, is temperate but its great length from north to south is a key to its varied climate, from tropical to cool temperate, with varieties of agricultural products.

Although Argentina is eminently suited for *agricultural* development for its climate and soil, only 11 per cent. of the total land area is devoted to arable farming, and yet Argentina is regarded as the granary of South America. Maize, wheat, barley, linseed, oats, tobacco, cotton, flax, sugar-cane and vines are the principal crops grown. Argentina is the world's third largest producer of maize and holds the eighth place in the list of the world's producers of wheat. The principal agricultural crops are chiefly grown in the temperate grassland regions (Pampas). *Pastoral industry* is highly important and over 40 per cent. of the land area is devoted to pasture land. Argentina is the world's second largest producer of wool. Hides and skins, frozen and chilled meat and wool constitute its principal items of export. *Mineral wealth* is not considerable. Of the minerals worked, gold, silver, copper, lead, zinc, tin and petroleum are important. *Manufacturing industry* has not developed greatly due to paucity of coal. The processing of its agricultural and pastoral products constitutes its principal manufacture. *Lumbering industry* is also important and it occupies over 30 per cent. of the land area.

The principal exports are animal and animal products, wheat, flour, maize, linseed and timber ; and the principal imports com-

prise hardware and machinery textile goods chemicals beverages oil iron and steel Foreign trade is mostly carried on with Great Britain the U.S.A. Brazil and Sweden

Communication system has greatly developed in Argentina due to the extreme flatness of the country Its railway mileage exceeds 28 000 miles and its roadway mileage is nearly 40 000 miles Air transport is important and is developing rapidly

Bahia Blanca is an important port serving the Pampas It is a natural harbour and exports mainly food grains

CHILE—Chile consists of a long narrow strip on the western edge of South America stretching right down from Peru It has an area of 286 397 sq. miles and a population of 5.9 millions Climatically Chile can be divided into three broad zones—(i) the hot deserts in the north (ii) the Mediterranean regions in the centre and (iii) cool wet climate in the south

Agriculture is the mainstay of the people of the centre Wheat barley maize Mediterranean fruits and vegetables are grown in Central Chile *Minerals* are important in the north Copper coal iron manganese silver and gold are the principal minerals It is the second largest producer of copper in the world It is also the world's largest producer of natural nitrate of soda which is chiefly found in the hot desert regions of northern Chile

Chile is one of the leading coal producing countries in South America Petroleum tungsten cobalt molybdenum sulphur, etc. are also present Southern Chile is mainly forested but the forest resources have not been exploited Southern Chile has also excellent pastures where sheep and cattle are reared The principal industries of Chile is confined to the central part where leather hardware and wine manufacture constitute important industries

The rivers are short and are full of rapids They are useless as natural highways There has been considerable development in rail road and air transport in recent years

Nitrate copper timber Mediterranean fruits wool meat and iron-ores are its principal exports Textiles hardware luxury goods paper and motor cars are its principal imports Foreign trade is carried on chiefly with the U.S.A., Great Britain, Argentina Brazil and Peru

BOLIVIA—Bolivia is an inland country having an area of 404,388 sq. miles and a total population of three millions. It is a very backward country. Lack of labour has hampered the development of any manufacturing industry, and stock-raising, mining and agriculture constitute the principal industries of the country. In the plateau region sheep and alpacas are reared. But the most important industry of Bolivia is mining, tin and antimony being particularly important. In the production of both these minerals Bolivia ranks third in the world. Other important minerals are copper, silver, zinc, lead and tungsten. The heavy summer rains account for successful cultivation in the eastern lowlands and the principal agricultural crops are sugar-cane, coffee, cocoa, oilseeds and rubber.

The most important item of export is tin which constitutes nearly three-fourths of the total exports of the country. Next in importance are copper, antimony, silver, zinc, tungsten and rubber. Sugar, wheat, coal, iron and steel, petroleum, machinery, motor vehicles and textiles are the articles imported by Bolivia. Foreign trade is carried on chiefly with the U.S.A., Peru, Chile, Brazil and Great Britain.

ECUADOR—Ecuador lies south of Colombia and covers an area of 276,008 sq. miles with a population of nearly 3 millions. The country is economically very backward. The climate of the country varies from tropical in the lowlands to temperate in the highlands. Cocoa, coffee, rice, sugar-cane, tobacco, rubber, cotton and oilseeds are the principal agricultural crops. Cocoa is the most important product on which the economic advancement of the country largely depends. The country is rich in mineral resources but these have not been properly exploited. Of the minerals, petroleum, silver and gold are most important. Moreover sulphur, copper, iron, lead and coal are also present.

The principal articles of export are cocoa, rice, coffee, petroleum, gold, sugar, and fruits, and the principal imports are textiles, hardware, chemicals, machinery, vehicles and food-stuffs. Foreign trade is carried on mainly with the U.S.A., Argentina and Great Britain.

PERU—Peru is lying to the south of Ecuador and covers an area of 482,259 sq. miles with a total population of 6½ millions. Agriculture and mining are the two principal occupa-

tions of the people. Coffee, cocoa, tobacco, sugar cane and cotton are extensively grown. Minerals are present. Gold, silver, copper, mercury, lead, zinc, iron, coal and petroleum are the principal minerals. Rubber is also produced in the equatorial zone of Peru.

Stock raising is important in the Andean zone and the live stock consists of sheep, cattle, llamas, alpacas, and vicunas. The Amazon basin is densely forested.

Although the economic resources of the country are plentiful, frequent civil wars due to weak and unstable government, as also lack of communication, are serious handicaps to the proper exploitation of these resources.

The country's principal articles of export are petroleum, copper, cotton, sugar, tobacco, timber, wool and hides, while its imports are textiles, metals, chemicals, machinery, vehicles and food-stuffs.

THE GUIANAS—The Guianas comprising British, French, and Dutch Guianas are not of any great commercial significance. Sugar-cane, cocoa, coffee, rice and cotton are grown. Minerals like diamonds and bauxite are also present. In production of bauxite the Guianas occupy the world's second largest position.

FOREIGN TRADE OF SOUTH AFRICA—Much of South America's economic prosperity depends on the export of the agricultural and forest products and also the minerals of the coastal regions and the import of manufactured goods. Proper utilisation of the economic resources of the interior has not yet been made and this accounts for the backwardness of that part of the country.

South America's foreign trade is usually carried on with Great Britain and the U.S.A. Coffee, cocoa, rice, sugar, wheat, cotton, maize and rubber constitute its principal agricultural crops. Brazil exports three fourths of the world's total requirements of coffee, in addition to sugar, cocoa, timber and rubber. The U.S.A. is the principal importer of these followed by France and other countries of western Europe. In exchange for these commodities Brazil imports iron and steel, cotton piece goods, and machinery.

Ecuador, Peru and Colombia export cocoa to the U.S.A., Holland and other countries of Europe.